

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 10,1 a9
Edition : 26.6.89
Replaces : 5.3.87
Test oil : ISO-4113
Combination no. : 9 400 231 039
Injection pump
Pump designation : PES6P110A72ORS370
Governor
Governor design. : RSV450...1050P0/465

Customer-spec. information
Customer : JOHN DEERE

Engine : 6619A

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : 1 417 413 010

Inlet press., bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6,00x1,50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.75...2.85
 : (2.70...2.90)
Rack travel in mm : 10.50
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0.50 (0.75)

A01

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050
Rack travel in mm : 12.40...12.50

Del. quantity cm³/ : 17.4...17.6

100 s: (-)

Spread cm³ : 0.4

100 s: (-)

2nd speed rpm : 450
Rack travel in mm : 5.90...6.10
Del. quantity cm³/ : 1.9...2.5

100 s: (-)

Spread cm³ : 0.4

100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...0.70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1050
Aneroid pressure h: 930
Del. quantity : 174.0...176.0
1000 : (-)
Spread cm³ : 4.0
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 43...51

Testing:
1st rack travel in: 11.40
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1205...1235
4th rack travel in: 1300
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 21...29

Setting point w/out bumper spring

Speed rpm : 450
Rack travel in mm : 5.5
Speed rpm : 450
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 580...640
Speed rpm : 850
Maximum rack travel: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 12.40...12.50
2nd speed rpm : 650
Rack travel in m: 13.65...13.75

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 590
Rack travel mm : 13.55...13.65

Measurement

Speed 1/min : 500
1st pressure hPa : 280
Rack travel in m: 11.40...11.80

START CUT-OUT

Speed 1/min : 400...750

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 930
Speed rpm : 650
Del. quantity cm³/ : 198.5...201.5
1000 s: (-)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 124.0...132.0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 11.40
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

A02

Speed rpm : 100
Del. quantity cm³/ : 190.0...210.0
1000 s: (-)

HIGH IDLE

1st version
Speed rpm : 1170
Del. quantity cm³/ : 65.0...75.0
1000 s: (-)

LOW IDLE

Speed rpm : 450
Del. quantity cm³/ : 19.0...25.0
1000 s: (-)

Remarks:

: JOHN DEERE # AR90118

Start-of-delivery mark at control-rod
travel 10.5 mm and 15° after start of
delivery.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 15,6 f
Edition : 02.05.89
Replaces : 17.8.87
Test oil : ISO-4113
Combination no. : 9 400 231 128
Injection pump
Pump designation : PES8P110A120RS3111
EP type number : 9 410 231 020
Governor
Governor design. : RSV400...10SOP2/435-1
Governor no. : 9 420 234 084

Customer-spec. information
Customer : JOHN DEERE

Engine : 8955 T

1st version kW : 216.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x3.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.75...2.85
: (2.70...2.90)

Rack travel in mm : 10.50
Firing order : 1- 5- 6- 3- 4- 2-
7- 8

Phasing : 0-45-90-135-180-225-
270-315
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 9.50...9.60

Del. quantity cm³/ : 14.7...14.9

100 s : (14.5...15.1)

Spread cm³ : 0.4

100 s : (0.7)

2nd speed rpm : 400.0

Rack travel in mm : 4.6...4.8

Del. quantity cm³/ : 2.2...2.7
100 s : (2.0...3.0)

Spread cm³ : 0.4
100 s : (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 900

Del. quantity : 147.0...149.0
1000 : (145.0...151.0)

Spread cm³ : 4.00
1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 41...49

Testing:

1st rack travel in: 8.50

Speed rpm : 1095...1105

2nd rack travel in: 4.00

Speed rpm : 1155...1165

4th rack travel in: 1275
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 4.2

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 4.60...4.80
Rack travel in mm : 2.00
Speed rpm : 540...600

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 9.50...9.60
2nd speed rpm : 750
Rack travel in m: 10.40...10.60

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 550
Pressure hPa : 900
Rack travel mm : 10.40...10.60

Measurement

Speed 1/min : 550

1st pressure hPa : -
Rack travel in m: 8.80...9.00
2nd pressure hPa : 390
Rack travel in m: 10.20...10.30
3rd pressure hPa : 280
Rack travel in m: 9.10...9.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 750
Del. quantity cm³/ : 163.5...166.5
1000 s: (161.0...169.0)
Aneroid pressure h: -
Speed rpm : 550
Del. quantity cm³/ : 130.0...134.0
1000 s: (128.0...136.0)

BREAKAWAY

A04

1st version
1mm rack travel less than

full load rack tr: 8.50
Speed rpm : 1095...1105

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 180.0...200.0
1000 s: (170.0...210.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 4.60...4.80
Del. quantity cm³/ : 22.5...27.5
1000 s: (20.0...30.0)
Spread cm³ : 4.50
1000 s: (7.50)

Remarks:

: JOHN DEERE
: # AR103264

Start-of-delivery mark 16° cam angle
after start of delivery cyl. 8

APPLICATION

Wheel loader

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 g 8
Edition : 07.04.89
Replaces : 14.1.88
Test oil : ISO-4113

Combination no. : 9 400 231 236

Injection pump
Pump designation : PES6P110A72ORS3083-1
EP type number : 9 410 231 027
Governor
Governor design. : RSV475...1050P2A455-
3
Governor no. : 9 420 234 172

Customer-spec. information
Customer : JOHN DEERE

Engine : 6466A

1st version kW : 151.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 9 681 271 022

Outside diameter
x Wall thickness
x Length mm : 6.35X3.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 3.45...3.55
: (3.40...3.60)

A05

Rack travel in mm : 10.50
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.70...11.80

Del. quantity cm³/ : 13.6...13.9

100 s: (13.4...14.2)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 475.0

Rack travel in mm : 5.9...6.1

Del. quantity cm³/ : 1.4...1.9

100 s: (1.2...2.2)

Spread cm³ : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del. quantity : 136.5...139.5

1000 : (134.0...142.0)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 38...46

Testing:

1st rack travel in: 10.70

Speed rpm : 1090...1100

2nd rack travel in: 4.00

Speed rpm : 1145...1155
3rd rack travel in: 4.00
Speed rpm : 1150...1170
4th rack travel in: 1250
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 475
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 475
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 650...710

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 11.70...11.80
2nd speed rpm : 700
Rack travel in m: 12.10...12.20

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700
Del. quantity cm³/ : 139.5...143.5
1000 s: (136.5...146.5)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 10.70
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 150.0...170.0
1000 s: (145.0...175.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 475
Rack travel in mm : 5.90...6.10
Del. quantity cm³/ : 14.5...19.5
1000 s: (12.0...22.0)

Spread cm³ : 4.50
1000 s: (7.50)

Remarks:

: JOHN DEERE # RE30252
Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Starting/full-load transition speed
from holding magnet = 450 1/min.

Start-of-delivery mark 12° cam angle
after start of delivery cyl. 1.

APPLICATION

Excavator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 5,7 v 17
 Edition : 02.05.89
 Replaces : 19.12.88
 Test oil : ISO-4113
 Combination no. : 9 407 083 267
 Injection pump
 Pump designation : PES6A90D410RS2596
 EP type number : 0 410 896 073
 Governor
 Governor design. : RQV300...1400AB114SL
 Governor no. : 9 420 080 148

Customer-spec. information
 Customer : DIMLER-BENZ

Engine : OM352

1st version kW : 116,0
 Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
 : (1.95...2.15)

Rack travel in mm : 9.00...12.00

A07

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 12.20...12.30

Del. quantity cm³/ : 6.8...6.9

100 s: (6.6...7.1)

Spread cm³ : 0.3

100 s: (0.5)

2nd speed rpm : 300.0

Rack travel in mm : 9.4...9.6

Del. quantity cm³/ : 1.2...1.6

100 s: (1.0...1.8)

Spread cm³ : 0.2

100 s: (0.4)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 0.80...1.30

2nd speed rpm : 500
 travel mm : 2.30...2.80

3rd speed rpm : 750
 travel mm : 4.10...4.30

4th speed rpm : 1500
 travel mm : 8.50...8.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1500

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Del. quantity : 68.0...69.0

1000 : (66.0...71.0)

Spread cm³ : 3.00

1000 : (5.00)

RATED SPEED

1st version
Control lever
position degrees: 59...67

Testing:
1st rack travel in: 11.15
Speed rpm : 1440...1450
2nd rack travel in: 4.00
Speed rpm : 1570...1600
4th rack travel in: 1750
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 20...28

Testing:
Speed rpm : 100
Minimum rack trave: 11.00
Speed rpm : 300
Rack travel in mm : 9.40...9.60
Rack travel in mm : 2.00
Speed rpm : 570...630

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 500
Del.quantity cm³/ : 49.5...51.5
1000 s: (47.0...54.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.15
Speed rpm : 1440...1450

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 73.0...83.0
1000 s: (70.0...86.0)
Rack travel in mm : 15.60...16.00

Remarks:
:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : OPE 2,3 M6
Edition : 19.07.89
replaces : 18.07.88
Calibrating oil : ISO 4113

Injection pump : VE 4/1GF2100 L297-1
Type number : 0 460 404 056

Customer-specific information
Customer : OPEL

Engine : 2,3 YDT

Power k: 74

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : -
(from BDC): -

Indicator setting:
Piston stroke mm: 1.0
Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500
Charge press. hPa: 1000
Setting value mm: 5,1...5,5

KSB solenoid-operated
valve volt: 12,0

Supply-pump pressure:

Speed 1/min: 1500
Charge press. hPa: 1000
Setting value bar: 5,4...6,0
KSB solenoid-operated
valve volt: 12,0

Full-load del. with charge press.:

Speed 1/min: 1200
Charge press. hPa: 1000
Del. quantity cm³/
1000H.: 62,5...63,5
KSB solenoid-operated
valve volt: 12,0
Dispersion cm³ : 3,0
1000H.: (3,0)

Full-load del. w/out charge press.:

Speed 1/min : 500
Del. quantity cm³/
1000H.: 40,5...41,5
KSB solenoid-operated
valve volt: 12,0

Low-idle speed regulation:

Speed 1/min: 290
Del. quantity cm³/
1000H.: 13,5...17,5
KSB solenoid-operated
valve volt: 12,0
Dispersion cm³ : 3,0
1000H.: (3,0)

Full-load speed regulation:

Speed 1/min: 2500
Charge press. hPa: 1000
Del. quantity cm³/
1000H.: 15,0...21,0
KSB solenoid-operated
valve volt: 12,0

Start:

Speed 1/min: 100
Del. quantity : 57,0...59,0
mind cm³/1000H.: -
KSB solenoid-operated
valve volt: 12,0

Load-dependent start of delivery:

Speed 1/min: 1500

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 300
Charge press. hPa: 1000
TD travel mm: 1,5...3,5
mm: (1,3...3,7)

KSB solenoid-operated
valve volt: -
2nd speed 1/min: 800
Charge press. hPa: 1000
TD travel mm: 3,5...5,9
mm: (2,9...6,5)

KSB solenoid-operated
valve volt: -
3rd speed 1/min: 1200
Charge press. hPa: 1000
TD travel mm: 3,8...6,2
mm: -

KSB solenoid-operated
valve volt: -
4th speed 1/min: 800
Charge press. hPa: 1000
TD travel mm: 1,1...1,9
mm: (0,8...2,2)

KSB solenoid-operated
valve volt: 12,0
5th speed 1/min: 1200
Charge press. hPa: 1000
TD travel mm: 3,5...4,1
mm: (3,1...4,5)

KSB solenoid-operated
valve volt: 12,0
6th speed 1/min: 1500
Charge press. hPa: 1000
TD travel mm: 5,1...5,5
mm: (4,6...6,0)

KSB solenoid-operated
valve volt: 12,0
1st speed 1/min: 2100
Charge press. hPa: 1000
TD travel mm: 7,8...8,6
mm: (7,5...8,9)

Supply-pump pressure characteristic:

1st speed 1/min: 300
Charge press. hPa: 1000
Supply-pump pressure bar: 4,2...4,8
KSB solenoid-operated
valve volt: -
2nd speed 1/min: 1200
Charge press. hPa: 1000

Supply-pump pressure bar: 4,6...5,2
KSB solenoid-operated
valve volt: 12,0
3rd speed 1/min: 1500
Charge press. hPa: 1000

Supply-pump pressure bar: 5,4...6,0
KSB solenoid-operated
valve volt: 12,0
4th speed 1/min: 2100
Charge press. hPa: 1000

Supply-pump pressure bar: 6,9...7,5
KSB solenoid-operated
valve volt: 12,0

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
KSB solenoid-operated
valve volt: 12,0
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 2100
Charge press. hPa: 1000
KSB solenoid-operated
valve volt: 12,0
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 800*
Charge-air pressure-setting
point hPa: 500
LDA stroke mm: 6,5
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/1000H.: (59,5...60,5
57,0...63,0)
2nd speed 1/min: 2700
Charge press. hPa: 1000
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/1000H.: -
3rd speed 1/min: 2500
Charge press. hPa: 1000
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/1000H.: (15,0...21,0
14,0...22,0)
4th speed 1/min: 2100
Charge press. hPa: 1000
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/1000H.: (51,3...53,7
50,2...54,8)

5th speed 1/min: 1200
Charge press. hPa: 1000
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: 62,5...63,5
1000H.: (60,7...65,3)

6th speed 1/min: 800
Charge press. hPa: 500
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: 59,5...60,5
1000H.: (56,0...63,0)

7th speed 1/min: 800
Charge press. hPa: 1000
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: 60,5...63,5
1000H.: -

8th speed 1/min: 800
Charge press. hPa: -
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: 40,5...43,5
1000H.: -

9th speed 1/min: 500
Charge press. hPa: -
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: 40,5...41,5
1000H.: (38,7...43,3)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 290
ELAB volt: -
Del. quantity cm³/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 290
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: 13,5...17,5
1000H.: (11,5...19,5)

2nd speed 1/min: 320
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: 7,0...13,0
1000H.: (6,5...13,5)

3rd speed 1/min: 380
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: 0,0...2,6
1000H.: (0,0...2,6)

Automatic starting fuel delivery:

1st speed 1/min: 250
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: -
ind. 1000H.: 55,0

2nd speed 1/min: 400
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: -
max. 1000H.: 50,0

3rd speed 1/min: 100
Del. quantity cm³/: (50,0...66,0)
1000H.: -

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation
K mm : 3,2...3,4
KF mm : 5,6...6,0
MS mm : 0,8...1,2

Operate control lever after each manifold-pressure compensator pressure change.

* Correction at adjusting nut (46)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : S0F 2,5P
Edition : 18.07.89
replaces : 27.07.88
Calibrating oil : ISO 4113

Injection pump : VE 4/10F2050 R318
Type number : 0 460 404 059

Customer-specific information
Customer : IVECO-SOFIM

Engine : 8144.97.2200

Power k: 83

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0,3
(from BDC): ±0,02 (0,04)

Indicator setting:
Piston stroke mm : 1.0
Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 600
Charge press. hPa: 800
Setting value mm: 0,9...1,3

Supply-pump pressure:

Speed 1/min: 600
Charge press. hPa: 800
Setting value bar: 3,4...4,0

Full-load del. with charge press.:

Speed 1/min: 1200
Charge press. hPa: 800
Del. quantity cm³/
1000H.: 62,5...65,5
Dispersion cm³/
1000H : (3,0)

Full-load del. w/out charge press.:

Speed 1/min : 500
Del. quantity cm³/
1000H.: 42,5...43,5

Low-idle speed regulation:

Speed 1/min: 425
Del. quantity cm³/
1000H.: 12,5...16,5

Full-load speed regulation:

Speed 1/min: 2475
Charge press. hPa: 800
Del. quantity cm³/
1000H: 14,0...20,0

Start:

Speed 1/min: 100
Del. quantity : -
mind cm³/1000H.: 55,0

Load-dependent start of delivery:

Speed 1/min: 600
Charge press. hPa: -

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600
Charge press. hPa: 800
TD travel mm: 0,9...1,3
mm: (0,6...1,6)

2nd speed 1/min: 1200
Charge press. hPa: 800
TD travel mm: 4,2...5,0
mm: (3,9...5,3)

3rd speed 1/min: 2000

Charge press. hPa: 800
TD travel mm: 8,7...9,5
mm: (8,4...9,8)
4th speed 1/min: 2300
TD travel mm: 10,0...10,8
mm: -

Supply-pump pressure characteristic:

1st speed 1/min: 600
Charge press. hPa: 800
Supply-pump pressure bar: 3,4...4,0
2nd speed 1/min: 1200
Charge press. hPa: 800
Supply-pump pressure bar: 5,2...5,8
3rd speed 1/min: 2000
Charge press. hPa: 800
Supply-pump pressure bar: 7,2...7,8

Overflow quantity at overflow valve:

1st speed 1/min: 500
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 2050
Charge press. hPa: 800
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 600*
Charge-air pressure-setting point hPa: 290
LDA stroke mm: 5,3
Del. quantity cm³/: 53,0...54,0
1000H.: (51,0...56,0)
2nd speed 1/min: 2550
Charge press. hPa: 800
Del. quantity cm³/: 0,0...6,0
1000H.: -
3rd speed 1/min: 2475
Charge press. hPa: 800
Del. quantity cm³/: 14,0...20,0
1000H.: (13,0...21,0)
4th speed 1/min: 2350
Charge press. hPa: 800
Del. quantity cm³/: 35,0...43,0
1000H.: -
5th speed 1/min: 2050
Charge press. hPa: 800
Del. quantity cm³/: 54,0...57,0
1000H.: (53,3...57,7)
6th speed 1/min: 1950
Charge press. hPa: 800
Del. quantity cm³/: 56,0...57,0
1000H.: (54,5...58,5)

7th speed 1/min: 1200
Charge press. hPa: 800
Del. quantity cm³/: 62,5...65,5
1000H.: -
8th speed 1/min: 600
Charge press. hPa: 290
Del. quantity cm³/: 53,0...54,0
1000H.: (51,0...56,0)
9th speed 1/min: 500
Charge press. hPa: -
Del. quantity cm³/: 42,5...43,5
1000H.: (40,5...45,5)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 425
ELAB volt: -
Del. quantity cm³/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 425
Del. quantity cm³/: 12,5...16,5
1000H.: (10,5...19,5)
2nd speed 1/min: 500
Del. quantity cm³/: 5,5...10,5
1000H.: -
3rd speed 1/min: 700
Del. quantity cm³/: 2,0...5,0
1000H.: -

Automatic starting fuel delivery:

2nd speed 1/min: 350
Del. quantity cm³/: -
max. 1000H.: 90,0

Shutoff electromagnet:

Cut-in min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K mm : -
KF mm : 5,6...6,0
MS mm : 1,6...2,0
XK mm : 20,0...22,0
XL mm : 11,8...15,2

Remarks:

* Correction at adjusting nut (46)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 3,9 E
Edition : 11.07.89
replaces : 02.08.88
Calibrating oil : ISO 4113

Injection pump : VE 4/12F1100 R226
Type number : 0 460 424 022

Customer-specific information
Customer : CDC

Engine : 4 BT 390

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
pressure bar : 250...253

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0,3
(from BDC) : $\pm 0,02$ (0,04)

Start of delivery block
Piston stroke mm : 1,8
mm : $\pm 0,02$ (0,06)

Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 900
Setting value mm: 2,3...2,7

Supply-pump pressure:

Speed 1/min: 900
Setting value bar: 4,1...4,7

Full-load del. w/out charge press.:

Speed 1/min : 900
Del. quantity cm³/
1000H.: 67,5...68,5
Dispersion cm³/: 4,0
1000H.: (4,5)

Low-idle speed regulation:

Speed 1/min: 335
Del. quantity cm³/
1000H.: 8,0...14,0
Dispersion cm³/: 5,5
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1150
Del. quantity cm³/
1000H.: 53,0...59,0

Start:

Speed 1/min: 100
Del. quantity : -
mind cm³/1000H.: 70,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 750
TD travel mm: 1,3...2,1
mm: (1,0...2,4)
2nd speed 1/min: 900
TD travel mm: 2,3...2,7
mm: (1,8...3,2)
3rd speed 1/min: 1100
TD travel mm: 3,1...3,9
mm: (2,8...4,2)

Supply-pump pressure characteristic:

1st speed 1/min: 500
Supply-pump
pressure bar: 2,3...2,9
2nd speed 1/min: 900
Supply-pump
pressure bar: 4,1...4,7
3rd speed 1/min: 1100

Supply-pump
pressure bar: 4,9...5,5

Overflow quantity at overflow valve:

1st speed 1/min: 500
Overflow quantity cm³/10s: (41...83)
2nd speed 1/min: 1100
Overflow quantity cm³/10s: (55...138)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1250
Del. quantity cm³/1000H.: 0,0...3,0
2nd speed 1/min: 1220
Del. quantity cm³/1000H.: 0,0...15,0
3rd speed 1/min: 1180
Del. quantity cm³/1000H.: 15,0...55,0
4th speed 1/min: 1150
Del. quantity cm³/1000H.: 53,0...59,0
5th speed 1/min: 1100
Del. quantity cm³/1000H.: (64,5...67,5)
6th speed 1/min: 900
Del. quantity cm³/1000H.: (67,5...68,5)
7th speed 1/min: 750
Del. quantity cm³/1000H.: (70,0...74,0)
8th speed 1/min: 500
Del. quantity cm³/1000H.: (69,0...77,0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1100
Del. quantity cm³/1000H.: 0..3

Electr. shutoff:

Speed 1/min: 335
ELAB volt: -
Del. quantity cm³/1000H.: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 335
Del. quantity cm³/1000H.: 8,0...14,0
2nd speed 1/min: 500

Del. quantity cm³/1000H.: 0,0...4,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130
Del. quantity cm³/ind. 1000H.: 80,0
2nd speed 1/min: 240
Del. quantity cm³/max. 1000H.: 80,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	:	-
KF	mm	:	5,0...5,4
MS	mm	:	1,1...1,5
SVS max.	mm	:	3,2
XK	mm	:	18,8...20,8
XL	mm	:	12,2...15,6

Remarks:

: C.D.C. # 390 8185

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 3,9E1
Edition : 13.07.89
replaces : 02.08.88
Calibrating oil : ISO 4113
Injection pump : VE 4/12F1150 R226-1
Type number : 0 460 424 023

Customer-specific information
Customer : CDC

Engine : 4 BT 390

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
pressure bar : 250...253

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0,3
(from BDC) : $\pm 0,02$ (0,06)

Start of delivery block
Piston stroke mm : 1,8
mm : $\pm 0,02$ (0,06)

Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 900
Setting value mm: 2,0...2,4

Supply-pump pressure:

Speed 1/min: 900
Setting value bar: 4,2...4,8

Full-load del. w/out charge press.:

Speed 1/min : 900
Del.quantity cm³/
1000H.: 67,0...68,0
Dispersion cm³/: 4,0
1000H.: (4,5)

Low-idle speed regulation:

Speed 1/min: 375
Del.quantity cm³/
1000H.: 8,0...14,0
Dispersion cm³/: 5,5
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1190
Del.quantity cm³/
1000H.: 47,0...53,0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm³/1000H.: 70,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 750
TD travel mm: 0,8...1,6
mm: (0,5...1,9)
2nd speed 1/min: 900
TD travel mm: 2,0...2,4
mm: (1,5...2,9)
3rd speed 1/min: 1150
TD travel mm: 3,2...4,0
mm: (2,9...4,3)

Supply-pump pressure characteristic:

1st speed 1/min: 500
Supply-pump
pressure bar: 2,5...3,1
2nd speed 1/min: 900
Supply-pump
pressure bar: 4,2...4,8
3rd speed 1/min: 1150

Supply-pump
pressure bar: 5,2...5,8

Overflow quantity at overflow valve:

1st speed 1/min: 500
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 1150
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1300
Del. quantity cm³/: 0,0...3,0
1000H.: (0,0...3,0)
2nd speed 1/min: 1260
Del. quantity cm³/: 0,0...15,0
1000H.: (0,0...15,0)
3rd speed 1/min: 1220
Del. quantity cm³/: 15,0...55,0
1000H.: (15,0...55,0)
4th speed 1/min: 1190
Del. quantity cm³/: 47,0...53,0
1000H.: (44,0...56,0)
5th speed 1/min: 1150
Del. quantity cm³/: 63,5...66,5
1000H.: (62,0...68,0)
6th speed 1/min: 900
Del. quantity cm³/: 67,0...68,0
1000H.: (64,5...70,5)
7th speed 1/min: 750
Del. quantity cm³/: 69,5...73,5
1000H.: (67,5...75,5)
8th speed 1/min: 500
Del. quantity cm³/: 68,0...76,0
1000H.: (66,0...78,0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1150
Del. quantity cm³/: 0..3
1000H.: -

Electr. shutoff:

Speed 1/min: 375
ELAB volt: -
Del. quantity cm³/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
Del. quantity cm³/: 8,0...14,0
1000H.: (6,0...16,0)
2nd speed 1/min: 500

Del. quantity cm³/: 0,0...4,0
1000H.: (0,0...4,0)

Automatic starting fuel delivery:

1st speed 1/min: 130
Del. quantity cm³/: -
ind. 1000H.: 80,0

2nd speed 1/min: 240
Del. quantity cm³/: -
max. 1000H.: 80,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation
K mm : -
KF mm : 5,0...5,4
MS mm : 1,1...1,5
SVS max. mm : 4,0

Remarks:

: C.D.C. # 390 8184

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 3,9 E5
Edition : 13.07.89
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 4/12F1150 R226-1
Type number : 0 460 424 023
Customer Part-No. : 3 908 193

Customer-specific information
Customer : CDC

Engine : 4 BT 390

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
pressure bar : 250...253

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0,3
(from BDC) : $\pm 0,02$ (0,06)

Start of delivery block
Piston stroke mm : 1,8
mm : $\pm 0,02$ (0,06)

Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 900

Setting value mm: 2,0...2,4

Supply-pump pressure:

Speed 1/min: 900
Setting value bar: 4,2...4,8

Full-load del. w/out charge press.:

Speed 1/min : 900
Del. quantity cm³/
1000H.: 67,0...68,0
Dispersion cm³/: 4,0
1000H.: (4,5)

Low-idle speed regulation:

Speed 1/min: 375
Del. quantity cm³/
1000H.: 8,0...14,0
Dispersion cm³/: 5,5
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1190
Del. quantity cm³/
1000H.: 47,0...53,0

Start:

Speed 1/min: 100
Del. quantity : -
mind cm³/1000H.: 70,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 750
TD travel mm: 0,8...1,6
mm: (0,5...1,9)
2nd speed 1/min: 900
TD travel mm: 2,0...2,4
mm: (1,5...2,9)
3rd speed 1/min: 1150
TD travel mm: 3,2...4,0
mm: (2,9...4,3)

Supply-pump pressure characteristic:

1st speed 1/min: 500
Supply-pump
pressure bar: 2,5...3,1
2nd speed 1/min: 900
Supply-pump
pressure bar: 4,2...4,8
3rd speed 1/min: 1150

Supply-pump
pressure bar: 5,2...5,8

Overflow quantity at overflow valve:

1st speed 1/min: 500
Overflow quantity cm³/10s: 41...83
(26...98)
2nd speed 1/min: 1150
Overflow quantity cm³/10s: 55...138
(40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1300
Del. quantity cm³/1000H.: 0,0...3,0
(0,0...3,0)
2nd speed 1/min: 1260
Del. quantity cm³/1000H.: 0,0...15,0
(0,0...15,0)
3rd speed 1/min: 1220
Del. quantity cm³/1000H.: 15,0...55,0
(15,0...55,0)
4th speed 1/min: 1190
Del. quantity cm³/1000H.: 47,0...53,0
(44,0...56,0)
5th speed 1/min: 1150
Del. quantity cm³/1000H.: 63,5...66,5
(62,0...68,0)
6th speed 1/min: 900
Del. quantity cm³/1000H.: 67,0...68,0
(64,5...70,5)
7th speed 1/min: 750
Del. quantity cm³/1000H.: 69,5...73,5
(67,5...75,5)
8th speed 1/min: 500
Del. quantity cm³/1000H.: 68,0...76,0
(66,0...78,0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1150
Del. quantity cm³/1000H.: 0..3
1000H.: -

Electr. shutoff:

Speed 1/min: 375
ELAB volt: -
Del. quantity cm³/1000H.: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
Del. quantity cm³/1000H.: 8,0...14,0
(6,0...16,0)
2nd speed 1/min: 500

A20

Del. quantity cm³/1000H.: 0,0...4,0
(0,0...4,0)

Automatic starting fuel delivery:

1st speed 1/min: 130
Del. quantity cm³/ind.: -
1000H.: 80,0

2nd speed 1/min: 240
Del. quantity cm³/max.: -
1000H.: 80,0

Shutoff electromagnet:

Cut-in
min. voltage : 20,0
Rated voltage : 24,0

Mounting and assembly dimensions:

Designation
K mm : -
KF mm : 5,0...5,4
MS mm : 1,1...1,5
SVS max. mm : 4,0

Remarks:

:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 T
Edition : 13.07.89
replaces : 09.11.88
Calibrating oil : ISO 4113

Injection pump : VE 6/12F1000 R225-12
Type number : 0 460 426 081

Customer-specific information
Customer : CDC

Engine : 6BT-5.9

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
pressure bar : 250...253

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0,3
(from BDC) : $\pm 0,02$ (0,04)

Start of delivery block
Piston stroke mm : 1,0
mm : $\pm 0,02$ (0,06)

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 750
Setting value mm: 3,3...3,7

A21

Supply-pump pressure:

Speed 1/min: 750
Setting value bar: 3,5...4,1

Full-load del. w/out charge press.:

Speed 1/min : 750
Del. quantity cm³/
1000H.: 46,5...47,5
Dispersion cm³/
1000H.: (4,5)

Low-idle speed regulation:

Speed 1/min: 365
Del. quantity cm³/
1000H.: 8,0...14,0
Dispersion cm³/
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1050
Del. quantity cm³/
1000H.: 30,0...36,0

Start:

Speed 1/min: 100
Del. quantity : -
mind cm³/1000H.: 40,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500
TD travel mm: 1,1...1,9
mm: (0,8...2,2)
2nd speed 1/min: 750
TD travel mm: 3,3...3,7
mm: (2,8...4,2)
3rd speed 1/min: 1000
TD travel mm: 5,3...6,1
mm: (5,0...6,4)

Supply-pump pressure characteristic:

1st speed 1/min: 500
Supply-pump
pressure bar: 2,4...3,0
2nd speed 1/min: 750
Supply-pump
pressure bar: 3,5...4,1
3rd speed 1/min: 1000

Supply-pump
pressure bar: 4,6...5,2

Overflow quantity at overflow valve:

1st speed 1/min: 500
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 1000
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1150
Del. quantity cm³/: 0,0...3,0
1000H.: (0,0...3,0)
2nd speed 1/min: 1100
Del. quantity cm³/: 0,0...15,0
1000H.: (0,0...15,0)
3rd speed 1/min: 1060
Del. quantity cm³/: 15,0...45,0
1000H.: (15,0...45,0)
4th speed 1/min: 1050
Del. quantity cm³/: 30,0...36,0
1000H.: (27,0...39,0)
5th speed 1/min: 1000
Del. quantity cm³/: 44,5...47,5
1000H.: (43,0...49,0)
6th speed 1/min: 900
Del. quantity cm³/: 46,5...49,5
1000H.: (44,5...51,5)
7th speed 1/min: 750
Del. quantity cm³/: 46,5...47,5
1000H.: (43,0...50,0)
8th speed 1/min: 500
Del. quantity cm³/: 33,0...41,0
1000H.: (31,0...43,0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1000
Del. quantity cm³/: 0..3
1000H.: -

Electr. shutoff:

Speed 1/min: 365
ELAB volt: -
Del. quantity cm³/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 365
Del. quantity cm³/: 8,0...14,0
1000H.: (6,0...16,0)
2nd speed 1/min: 450

Del. quantity cm³/: 0,0...4,0
1000H.: (0,0...4,0)

Automatic starting fuel delivery:

1st speed 1/min: 200
Del. quantity cm³/: -
ind. 1000H.: 45,0

2nd speed 1/min: 370
Del. quantity cm³/: -
max. 1000H.: 50,0

Shutoff electromagnet:

Cut-in
min. voltage : 20,0
Rated voltage : 24,0

Mounting and assembly dimensions:

Designation
K mm : -
KF mm : 5,0...5,4
MS mm : 1,0...1,4
SVS max. mm : 1,5
XK mm : 18,8...20,8
XL mm : 8,9...12,3

Remarks:

: C.D.C. # 390 8204

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 T6
Edition : 13.07.89
replaces : -
Calibrating oil : ISO 4113
Injection pump : VE 6/12F1000 R225-12
Type number : 0 460 426 081
Customer Part-No. : 3 908 211

Customer-specific information
Customer : CDC

Engine : 6BT-5.9

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
pressure bar : 250...253

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0,3
(from BDC) : +-0,02 (0,04)

Start of delivery block
Piston stroke mm : 1,0
mm : +-0,02 (0,06)

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 750

Setting value mm: 3,3...3,7

Supply-pump pressure:

Speed 1/min: 750
Setting value bar: 3,5...4,1

Full-load del. w/out charge press.:

Speed 1/min : 750
Del. quantity cm3/
1000H.: 46,5...47,5
Dispersion cm3/ : 4,0
1000H.: (4,5)

Low-idle speed regulation:

Speed 1/min: 365
Del. quantity cm3/
1000H.: 8,0...14,0
Dispersion cm3/ : 5,5
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1050
Del. quantity cm3/
1000H.: 30,0...36,0

Start:

Speed 1/min: 100
Del. quantity : -
mind cm3/1000H.: 40,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500
TD travel mm: 1,1...1,9
mm: (0,8...2,2)
2nd speed 1/min: 750
TD travel mm: 3,3...3,7
mm: (2,8...4,2)
3rd speed 1/min: 1000
TD travel mm: 5,3...6,1
mm: (5,0...6,4)

Supply-pump pressure characteristic:

1st speed 1/min: 500
Supply-pump
pressure bar: 2,4...3,0
2nd speed 1/min: 750
Supply-pump
pressure bar: 3,5...4,1
3rd speed 1/min: 1000

Supply-pump
pressure bar: 4,6...5,2

Overflow quantity at overflow valve:

1st speed 1/min: 500
Overflow quantity cm³/10s: 41...83
2nd speed 1/min: 1000
Overflow quantity cm³/10s: 55...138

Delivery-quant. and breakaway char.:

1st speed 1/min: 1150
Del. quantity cm³/: 0,0...3,0
1000H.: (0,0...3,0)
2nd speed 1/min: 1100
Del. quantity cm³/: 0,0...15,0
1000H.: (0,0...15,0)
3rd speed 1/min: 1060
Del. quantity cm³/: 15,0...45,0
1000H.: (15,0...45,0)
4th speed 1/min: 1050
Del. quantity cm³/: 30,0...36,0
1000H.: (27,0...39,0)
5th speed 1/min: 1000
Del. quantity cm³/: 44,5...47,5
1000H.: (43,0...49,0)
6th speed 1/min: 900
Del. quantity cm³/: 46,5...49,5
1000H.: (44,5...51,5)
7th speed 1/min: 750
Del. quantity cm³/: 46,5...47,5
1000H.: (43,0...50,0)
8th speed 1/min: 500
Del. quantity cm³/: 33,0...41,0
1000H.: (31,0...43,0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1000
Del. quantity cm³/: 0..3
1000H.: -

Electr. shutoff:

Speed 1/min: 365
ELAB volt: -
Del. quantity cm³/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 365
Del. quantity cm³/: 8,0...14,0
1000H.: (6,0...16,0)
2nd speed 1/min: 450

Del. quantity cm³/: 0,0...4,0
1000H.: (0,0...4,0)

Automatic starting fuel delivery:

1st speed 1/min: 200
Del. quantity cm³/: -
ind. 1000H.: 45,0

2nd speed 1/min: 370
Del. quantity cm³/: -
max. 1000H.: 50,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	:	-
KF	mm	:	5,0...5,4
MS	mm	:	1,0...1,4
SVS max.	mm	:	1,5
XK	mm	:	18,8...20,8
XL	mm	:	8,9...12,3

Remarks:

:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 W2
Edition : 13.07.89
replaces : 14.07.88
Calibrating oil : ISO 4113

Injection pump : VE 6/12F1100 R225-17
Type number : 0 460 426 118
Customer Part-No. :

Customer-specific information
Customer : CDC

Engine : 6BT- 5.9

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
pressure bar : 250...253

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0,3
(from BDC) : +-0,02 (0,04)

Start of delivery block
Piston stroke mm : 1,5
mm : +-0,002 (0,06)

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 900
Setting value mm: 4,2...4,6

Supply-pump pressure:

Speed 1/min: 900
Setting value bar: 4,7...5,3

Full-load del. w/out charge press.:

Speed 1/min : 1000
Del. quantity cm³/
1000H.: 63,2...64,2
Dispersion cm³/
1000H.: (4,5)

Low-idle speed regulation:

Speed 1/min: 375
Del. quantity cm³/
1000H.: 9,0...11,0
Dispersion cm³/
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1150
Del. quantity cm³/
1000H.: 44,3...50,3

Start:

Speed 1/min: 100
Del. quantity : -
mind cm³/1000H.: 70,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 750
TD travel mm: 2,9...3,7
mm: (2,6...4,0)
2nd speed 1/min: 900
TD travel mm: 4,2...4,6
mm: (3,7...5,1)
3rd speed 1/min: 1100
TD travel mm: 5,5...6,3
mm: (5,2...6,6)

Supply-pump pressure characteristic:

1st speed 1/min: 500
Supply-pump
pressure bar: 2,9...3,5
2nd speed 1/min: 750
Supply-pump
pressure bar: 4,0...4,6

3rd speed 1/min: 900
Supply-pump pressure bar: 4,7...5,3
4th speed 1/min: 1100
Supply-pump pressure bar: 5,5...6,1

Overflow quantity at overflow valve:

1st speed 1/min: 500
Overflow quantity cm3/10s: 41...83
2nd speed 1/min: 1100
Overflow quantity cm3/10s: 55...138

Delivery-quant. and breakaway char.:

1st speed 1/min: 1240
Del. quantity cm3/ 1000H.: 0,0...3,0
2nd speed 1/min: 1220
Del. quantity cm3/ 1000H.: 0,0...15,0
3rd speed 1/min: 1180
Del. quantity cm3/ 1000H.: 15,0...55,0
4th speed 1/min: 1150
Del. quantity cm3/ 1000H.: 44,3...50,3
5th speed 1/min: 1100
Del. quantity cm3/ 1000H.: 62,0...65,0
6th speed 1/min: 1000
Del. quantity cm3/ 1000H.: 63,2...64,2
7th speed 1/min: 750
Del. quantity cm3/ 1000H.: 78,5...82,5
8th speed 1/min: 500
Del. quantity cm3/ 1000H.: 81,5...91,5

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1100
Del. quantity cm3/ 1000H.: 0..3

Electr. shutoff:

Speed 1/min: 375
ELAB volt: -
Del. quantity cm3/ 1000H.: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
Del. quantity cm3/ 1000H.: 9,0...11,0
2nd speed 1/min: 450
Del. quantity cm3/ 1000H.: 0,0...4,0

Automatic starting fuel delivery:

1st speed 1/min: 270
Del. quantity cm3/ 1000H.: -
ind. 1000H.: 90,0

2nd speed 1/min: 400
Del. quantity cm3/ 1000H.: -
max. 1000H.: 90,0

Shutoff electromagnet:

Cut-in min. voltage : 20,0
Rated voltage : 24,0

Mounting and assembly dimensions:

Designation

K	mm	: -
KF	mm	: 5,0...5,4
MS	mm	: 1,3...1,7
XK	mm	: 18,8...20,8
XL	mm	: 10,9...14,3

Remarks:

: C.D.C. # 3 912 126

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 W3
Edition : 13.07.89
replaces : -
Calibrating oil : ISO 4113
Injection pump : VE 6/12F1100 R225-17
Type number : 0 460 426 118
Customer Part-No. : 3 912 125

Customer-specific information
Customer : CDC

Engine : 6BT- 5.9

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
pressure bar : 250...253

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0,3
(from BDC) : +0,02 (0,04)

Start of delivery block
Piston stroke mm : 1,5
mm : +0,002 (0,06)

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 900

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Setting value mm: 4,2...4,6

Supply-pump pressure:

Speed 1/min: 900
Setting value bar: 4,7...5,3

Full-load del. w/out charge press.:

Speed 1/min : 1000
Del. quantity cm³/
1000H.: 63,2...64,2
Dispersion cm³/
1000H.: (4,5)

Low-idle speed regulation:

Speed 1/min: 375
Del. quantity cm³/
1000H.: 9,0...11,0
Dispersion cm³/
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1150
Del. quantity cm³/
1000H.: 44,3...50,3

Start:

Speed 1/min: 100
Del. quantity : -
mind cm³/1000H.: 70,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 750
TD travel mm: 2,9...3,7
mm: (2,6...4,0)
2nd speed 1/min: 900
TD travel mm: 4,2...4,6
mm: (3,7...5,1)
3rd speed 1/min: 1100
TD travel mm: 5,5...6,3
mm: (5,2...6,6)

Supply-pump pressure characteristic:

1st speed 1/min: 500
Supply-pump
pressure bar: 2,9...3,5
2nd speed 1/min: 750
Supply-pump
pressure bar: 4,0...4,6
3rd speed 1/min: 900

Supply-pump pressure bar: 4,7...5,3
4th speed 1/min: 1100
Supply-pump pressure bar: 5,5...6,1

Overflow quantity at overflow valve:

1st speed 1/min: 500
Overflow quantity cm³/10s: (41...83)
2nd speed 1/min: 1100
Overflow quantity cm³/10s: (55...138)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1240
Del. quantity cm³/: 0,0...3,0
1000H.: (0,0...3,0)
2nd speed 1/min: 1220
Del. quantity cm³/: 0,0...15,0
1000H.: (0,0...15,0)
3rd speed 1/min: 1180
Del. quantity cm³/: 15,0...55,0
1000H.: (0,0...40,0)
4th speed 1/min: 1150
Del. quantity cm³/: 44,3...50,3
1000H.: (41,3...53,3)
5th speed 1/min: 1100
Del. quantity cm³/: 62,0...65,0
1000H.: (60,5...66,5)
6th speed 1/min: 1000
Del. quantity cm³/: 63,2...64,2
1000H.: (60,7...66,7)
7th speed 1/min: 750
Del. quantity cm³/: 78,5...82,5
1000H.: (76,5...84,5)
8th speed 1/min: 500
Del. quantity cm³/: 81,5...91,5
1000H.: (80,5...92,5)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1100
Del. quantity cm³/: 0..3
1000H.: -

Electr. shutoff:

Speed 1/min: 375
ELAB volt: -
Del. quantity cm³/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375

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Del. quantity cm³/: 9,0...11,0
1000H.: (5,0...15,0)
2nd speed 1/min: 450
Del. quantity cm³/: 0,0...4,0
1000H.: (0,0...4,0)

Automatic starting fuel delivery:

1st speed 1/min: 270
Del. quantity cm³/: -
ind. 1000H.: 90,0

2nd speed 1/min: 400
Del. quantity cm³/: -
max. 1000H.: 90,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	:	-
KF	mm	:	5,0...5,4
MS	mm	:	1,3...1,7
XK	mm	:	18,8...20,8
XL	mm	:	10,9...14,3

Remarks:

:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA 5,5 R
Edition : 19.07.89
replaces : 18.01.89
Calibrating oil : ISO 4113

Injection pump : VE 6/12F1350 R329
Type number : 0 460 426 119

Customer-specific information
Customer : IVECO-FIAT

Engine : 8060.25.221

Power k: 110

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 020

Opening
pressure bar : 172...175

Perforated-plate
diameter mm : 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0,2
(from BDC): +0,02 (0,04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1200
Charge press. hPa: 1000
Setting value mm: 3,0...3,4

Supply-pump pressure:

B01

Speed 1/min: 1200
Charge press. hPa: 1000
Setting value bar: 7,7...8,3

Full-load del. with charge press.:

Speed 1/min: 1200
Charge press. hPa: 1000
Del. quantity cm³/
1000H.: 103,5...104,5
Dispersion cm³/
1000H.: 5,0
1000H.: -

Full-load del. w/out charge press.:

Speed 1/min : 500
Del. quantity cm³/
1000H.: 66,6...67,5

Low-idle speed regulation:

Speed 1/min: 350
Charge press. hPa: -
Del. quantity cm³/
1000H.: 13,0...17,0
Dispersion cm³/
1000H.: 3,5
1000H.: -

Full-load speed regulation:

Speed 1/min: 1500
Charge press. hPa: 1000
Del. quantity cm³/
1000H.: 37,0...43,0

Start:

Speed 1/min: 100
Del. quantity : -
mind cm³/1000H.: 75,0

Load-dependent start of delivery:

Speed 1/min: 1200
Charge press. hPa: 1000

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 900
Charge press. hPa: 1000
TD travel mm: 0,7...1,5
mm: (0,4...1,8)
2nd speed 1/min: 1200
Charge press. hPa: 1000

TD travel mm: 3,0...3,4
mm: (2,5...3,9)
3rd speed 1/min: 1350
Charge press. hPa: 1000
TD travel mm: 3,6...4,4
mm: (3,3...4,7)

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
Supply-pump pressure bar: 5,0...5,6
2nd speed 1/min: 900
Charge press. hPa: 1000
Supply-pump pressure bar: 6,6...7,2
3rd speed 1/min: 1200
Charge press. hPa: 1000
Supply-pump pressure bar: 7,7...8,3
4th speed 1/min: 1350
Charge press. hPa: 1000
Supply-pump pressure bar: 8,3...8,9

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: 1000
Overflow quantity cm³/10s: 41...83
(26...98)
2nd speed 1/min: 1350
Charge press. hPa: 1000
Overflow quantity cm³/10s: 55...138
(40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 500*
Charge-air pressure-setting point hPa: 500
LDA stroke mm: 4,8
Del. quantity cm³/1000H.: 81,0...82,0
(78,5...84,5)
2nd speed 1/min: 1600
Charge press. hPa: 1000
Del. quantity cm³/1000H.: 0,0...3,0
3rd speed 1/min: 1500
Charge press. hPa: 1000
Del. quantity cm³/1000H.: 37,0...43,0
(34,0...46,0)
4th speed 1/min: 1350
Charge press. hPa: 1000
Del. quantity cm³/1000H.: 99,0...102,0
(97,5...103,5)
5th speed 1/min: 1200
Charge press. hPa: 1000

Del. quantity cm³/1000H.: 103,5...104,5
(101,0...107,0)
6th speed 1/min: 800
Charge press. hPa: 1000
Del. quantity cm³/1000H.: 98,5...101,5
(97,0...103,0)
7th speed 1/min: 500
Charge press. hPa: 500
Del. quantity cm³/1000H.: 81,0...82,0
(78,5...84,5)
8th speed 1/min: 500
Charge press. hPa: -
Del. quantity cm³/1000H.: 66,5...67,5
(64,0...70,0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1350
Del. quantity cm³/1000H.: 0..3
1000H.: -

Electr. shutoff:

Speed 1/min: 400
ELAB volt: -
Del. quantity cm³/1000H.: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 350
Del. quantity cm³/1000H.: 13,0...17,0
(10,0...20,0)
2nd speed 1/min: 450
Del. quantity cm³/1000H.: 0,0...5,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 150
Del. quantity cm³/ind.: -
1000H.: 85,0
2nd speed 1/min: 300
Del. quantity cm³/ind.: -
max. 1000H.: 60,0

Shutoff electromagnet:

Cut-in min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation
K mm : -
KF mm : 5,0...5,4

MS mm : -
SVS max. mm : -

* Correction at adjusting nut (46)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA 5,5 R1
Edition : 19.07.89
replaces : 18.01.89
Calibrating oil : ISO 4113

Injection pump : VE 6/12F1350 R329-1
Type number : 0 460 426 120

Customer-specific information
Customer : IVECO-FIAT

Engine : 8060.25.221

Power k: 91

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 020

Opening
pressure bar : 172...175

Perforated-plate
diameter mm : 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0,2
(from BDC): +-0,02 (0,04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1200
Charge press. hPa: 1000
Setting value mm: 3,0...3,4

Supply-pump pressure:

B04

Speed 1/min: 1200
Charge press. hPa: 1000
Setting value bar: 7,7...8,3

Full-load del. with charge press.:

Speed 1/min: 1200
Charge press. hPa: 1000
Del. quantity cm³/
1000H.: 96,0...97,0
Dispersion cm³/
1000H.: 5,0
1000H.: -

Full-load del. w/out charge press.:

Speed 1/min : 500
Del. quantity cm³/
1000H.: 66,6...67,5

Low-idle speed regulation:

Speed 1/min: 350
Charge press. hPa: -
Del. quantity cm³/
1000H.: 13,0...17,0
Dispersion cm³/
1000H.: 3,5
1000H.: -

Full-load speed regulation:

Speed 1/min: 1500
Charge press. hPa: 1000
Del. quantity cm³/
1000H.: 37,0...43,0

Start:

Speed 1/min: 100
Del. quantity : -
mind cm³/1000H.: 75,0

Load-dependent start of delivery:

Speed 1/min: 1200
Charge press. hPa: 1000

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 900
Charge press. hPa: 1000
TD travel mm: 0,7...1,5
mm: (0,4...1,8)
2nd speed 1/min: 1200
Charge press. hPa: 1000

TD travel mm: 3,0...3,4
mm: (2,5...3,9)
3rd speed 1/min: 1350
Charge press. hPa: 1000
TD travel mm: 3,6...4,4
mm: (3,3...4,7)

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
Supply-pump pressure bar: 5,0...5,6
2nd speed 1/min: 900
Charge press. hPa: 1000
Supply-pump pressure bar: 6,6...7,2
3rd speed 1/min: 1200
Charge press. hPa: 1000
Supply-pump pressure bar: 7,7...8,3
4th speed 1/min: 1350
Charge press. hPa: 1000
Supply-pump pressure bar: 8,3...8,9

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: 1000
Overflow quantity cm³/10s: 41...83
(26...98)
2nd speed 1/min: 1350
Charge press. hPa: 1000
Overflow quantity cm³/10s: 55...138
(40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 500*
Charge-air pressure-setting point hPa: 500
LDA stroke mm: 3,0
Del. quantity cm³/1000H.: 81,0...82,0
(78,5...84,5)
2nd speed 1/min: 1600
Charge press. hPa: 1000
Del. quantity cm³/1000H.: 0,0...3,0
3rd speed 1/min: 1500
Charge press. hPa: 1000
Del. quantity cm³/1000H.: 37,0...43,0
(34,0...46,0)
4th speed 1/min: 1350
Charge press. hPa: 1000
Del. quantity cm³/1000H.: 92,5...95,5
(91,0...97,0)
5th speed 1/min: 1200
Charge press. hPa: 1000

Del. quantity cm³/1000H.: 96,0...97,0
(93,5...99,5)
6th speed 1/min: 800
Charge press. hPa: 1000
Del. quantity cm³/1000H.: 90,5...93,5
(89,0...95,0)
7th speed 1/min: 500
Charge press. hPa: 500
Del. quantity cm³/1000H.: 81,0...82,0
(78,5...84,5)
8th speed 1/min: 500
Charge press. hPa: -
Del. quantity cm³/1000H.: 66,5...67,5
(64,0...70,0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1350
Del. quantity cm³/1000H.: 0..3

Electr. shutoff:

Speed 1/min: 400
ELAB volt: -
Del. quantity cm³/1000H.: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 350
Del. quantity cm³/1000H.: 13,0...17,0
(10,0...20,0)
2nd speed 1/min: 450
Del. quantity cm³/1000H.: 0,0...5,0

Automatic starting fuel delivery:

1st speed 1/min: 150
Del. quantity cm³/ind. 1000H.: 85,0
2nd speed 1/min: 250
Del. quantity cm³/max. 1000H.: 60,0

Shutoff electromagnet:

Cut-in min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation
K mm : -
KF mm : 5,0...5,4

MS mm : -
SVS max. mm : -

* Correction at adjusting nut (46)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 U43
Edition : 11.07.89
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 6/12F1100 R173-12
Type number : 0 460 426 126

Customer-specific information
Customer : CDC

Engine : 6 BTA- 590 IND

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
pressure bar : 250...253

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0,3
(from BDC) : +-0,02 (0,04)

Start of delivery block
Piston stroke mm : 1,85
mm : +-0,02 (0,06)

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 750
Charge press. hPa: 1000

B07

Setting value mm: 1.3...1.7

Supply-pump pressure:

Speed 1/min: 750
Charge press. hPa: 1000
Setting value bar: 3.2...3.8

Full-load del. with charge press.:

Speed 1/min: 750
Charge press. hPa: 1000
Del.quantity cm³/
1000H.: 83.0...84.0
Dispersion cm³/
1000H.: 4.0
1000H.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min : 500
Del.quantity cm³/
1000H.: 67.5...68.5
Dispersion cm³/
1000H.: -

Low-idle speed regulation:

Speed 1/min: 375
Del.quantity cm³/
1000H.: 9.0...13.0
Dispersion cm³/
1000H.: (7.0)

Full-load speed regulation:

Speed 1/min: 1150
Charge press. hPa: 1000
Del.quantity cm³/
1000H.: 60.0...66.0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm³/1000H.: 80.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600
Charge press. hPa: 1000
TD travel mm: 0.4...1.2
mm: (0.1...1.5)
2nd speed 1/min: 750
Charge press. hPa: 1000
TD travel mm: 1.3...1.7
mm: (0.8...2.2)

3rd speed 1/min: 1100
Charge press. hPa: 1000
TD travel mm: 2.2...3.0
mm: (1.9...3.3)

Supply-pump pressure characteristic:

1st speed 1/min: 600
Charge press. hPa: 1000
Supply-pump pressure bar: 2.6...3.2
2nd speed 1/min: 750
Charge press. hPa: 1000
Supply-pump pressure bar: 3.2...3.8
3rd speed 1/min: 1100
Charge press. hPa: 1000
Supply-pump pressure bar: 4.7...5.3

Overflow quantity at overflow valve:

1st speed 1/min: 500
Overflow quantity cm³/10s: 41...48
(26...98)
2nd speed 1/min: 1100
Charge press. hPa: 1000
Overflow quantity cm³/10s: 55...138
(40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700*
Charge-air pressure-setting point hPa: 400
Del. quantity cm³/: 77.5...78.5
1000H.: (73.5...82.5)
2nd speed 1/min: 1260
Charge press. hPa: 1000
Del. quantity cm³/: 0.0...3.0
1000H.: -
3rd speed 1/min: 1240
Charge press. hPa: 1000
Del. quantity cm³/: 0.0...15.0
1000H.: -
4th speed 1/min: 1200
Charge press. hPa: 1000
Del. quantity cm³/: 15.0...55.0
1000H.: -
5th speed 1/min: 1150
Charge press. hPa: 1000
Del. quantity cm³/: 60.0...66.0
1000H.: (57.0...69.0)
6th speed 1/min: 1100
Charge press. hPa: 1000
Del. quantity cm³/: 78.0...81.0
1000H.: (76.5...82.5)
7th speed 1/min: 900
Charge press. hPa: 1000

Del. quantity cm³/: 79.5...82.5
1000H.: (78.0...84.0)
8th speed 1/min: 750
Charge press. hPa: 1000
Del. quantity cm³/: 83.0...84.0
1000H.: (80.5...86.5)
9th speed 1/min: 500
Charge press. hPa: 1000
Del. quantity cm³/: 79.0...87.0
1000H.: -
10th speed 1/min: 500
Charge press. hPa: -
Del. quantity cm³/: 67.5...68.5
1000H.: (63.5...72.5)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1100
Del. quantity cm³/: 0...3
1000H.: -

Electr. shutoff:

Speed 1/min: 375
ELAB volt: -
Del. quantity cm³/: 0.0...3.0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
Del. quantity cm³/: 9.0...13.0
1000H.: (6.0...16.0)
2nd speed 1/min: 500
Del. quantity cm³/: 0.0...4.0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 280
ind. 1000H: 80.0
2nd speed 1/min: 440
Del. quantity cm³/: -
max. 1000H : 80.0

Shutoff electromagnet:

Cut-in
min. voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm : -
KF mm : 5,0...5,4
MS mm : 1,0...1,4

SVS max. mm : -

Remarks:

: C.D.C. # 390 4727

* Correction at adjusting nut (46)

Operate control lever after each manifold-pressure compensator pressure change.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 U42
Edition : 11.07.89
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 6/12F1100 R173-12
Type number : 0 460 426 126
Customer Part-No. : 3 904 545

Customer-specific information
Customer : CDC

Engine : 6 BTA- 590 IND

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
pressure bar : 250...253

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0,3
(from BDC) : $\pm 0,02$ (0,04)

Start of delivery block
Piston stroke mm : 1,85
mm : $\pm 0,02$ (0,06)

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 750

Charge press. hPa: 1000
Setting value mm: 1.3...1.7

Supply-pump pressure:

Speed 1/min: 750
Charge press. hPa: 1000
Setting value bar: 3.2...3.8

Full-load del. with charge press.:

Speed 1/min: 750
Charge press. hPa: 1000
Del. quantity cm³/
1000H.: 83.0...84.0
Dispersion cm³ / : 4.0
1000H.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min : 500
Del. quantity cm³/
1000H.: 67.5...68.5
Dispersion cm³ / : 9.0
1000H.: -

Low-idle speed regulation:

Speed 1/min: 375
Del. quantity cm³/
1000H.: 9.0...13.0
Dispersion cm³ / : 5.5
1000H.: (7.0)

Full-load speed regulation:

Speed 1/min: 1150
Charge press. hPa: 1000
Del. quantity cm³/
1000H.: 60.0...66.0

Start:

Speed 1/min: 100
Del. quantity : -
mind cm³/1000H.: 80.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600
Charge press. hPa: 1000
TD travel mm: 0.4...1.2
mm: (0.1...1.5)

2nd speed 1/min: 750
Charge press. hPa: 1000

TD travel mm: 1.3...1.7
mm: (0.8...2.2)
3rd speed 1/min: 1100
Charge press. hPa: 1000
TD travel mm: 2.2...3.0
mm: (1.9...3.3)

Supply-pump pressure characteristic:

1st speed 1/min: 600
Charge press. hPa: 1000
Supply-pump pressure bar: 2.6...3.2
2nd speed 1/min: 750
Charge press. hPa: 1000
Supply-pump pressure bar: 3.2...3.8
3rd speed 1/min: 1100
Charge press. hPa: 1000
Supply-pump pressure bar: 4.7...5.3

Overflow quantity at overflow valve:

1st speed 1/min: 500
Overflow quantity cm³/10s: 41...48
(26...98)
2nd speed 1/min: 1100
Charge press. hPa: 1000
Overflow quantity cm³/10s: 55...138
(40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700*
Charge-air pressure-setting point hPa: 400
Del. quantity cm³/: 77.5...78.5
1000H.: (73.5...82.5)
2nd speed 1/min: 1260
Charge press. hPa: 1000
Del. quantity cm³/: 0.0...3.0
1000H.: -
3rd speed 1/min: 1240
Charge press. hPa: 1000
Del. quantity cm³/: 0.0...15.0
1000H.: -
4th speed 1/min: 1200
Charge press. hPa: 1000
Del. quantity cm³/: 15.0...55.0
1000H.: -
5th speed 1/min: 1150
Charge press. hPa: 1000
Del. quantity cm³/: 60.0...66.0
1000H.: (57.0...69.0)
6th speed 1/min: 1100
Charge press. hPa: 1000
Del. quantity cm³/: 78.5...81.5
1000H.: (77.0...83.0)
7th speed 1/min: 900

Charge press. hPa: 1000
Del. quantity cm³/: 80.5...83.5
1000H.: (79.0...85.0)
8th speed 1/min: 750
Charge press. hPa: 1000
Del. quantity cm³/: 83.0...84.0
1000H.: (80.5...86.5)
9th speed 1/min: 500
Charge press. hPa: 1000
Del. quantity cm³/: 79.0...87.0
1000H.: -
10th speed 1/min: 500
Charge press. hPa: -
Del. quantity cm³/: 67.5...68.5
1000H.: (63.5...72.5)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1100
Del. quantity cm³/: 0..3
1000H.: -

Electr. shutoff:

Speed 1/min: 375
ELAB volt: -
Del. quantity cm³/: 0.0...3.0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
Del. quantity cm³/: 9.0...13.0
1000H.: (6.0...16.0)
2nd speed 1/min: 500
Del. quantity cm³/: 0.0...4.0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 280
ind. 1000H: 80,0
2nd speed 1/min: 440
Del. quantity cm³/: -
max. 1000H : 80.0

Shutoff electromagnet:

Cut-in min. voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

K mm : -
KF mm : 5,0...5,4

MS mm : 1,0...1,4
SVS max. mm : -

Remarks:

⋮
* Correction at adjusting nut (46)

Operate control lever after each
manifold-pressure compensator pressure
change.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 U20
Edition : 11.07.89
replaces : 02.02.89
Calibrating oil : ISO 4113

Injection pump : VE 6/12F1050 R225-18
Type number : 0 460 426 129

Customer-specific information
Customer : CDC

Engine : 6BT-5.9 IND

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
pressure bar : 250...253

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0.3
(from BDC): +-0.02 (0,04)

Start of delivery block
Piston stroke mm : 1.5
mm : +-0.02 (0.06)

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 750
Setting value mm: 3.4...3.8

Supply-pump pressure:

Speed 1/min: 750
Setting value bar: 3.7...4.3

Full-load del. w/out charge press.:

Speed 1/min : 750
Del. quantity cm³/
1000H.: 75.0...76.0
Dispersion cm³/
1000H.: (4.5)

Low-idle speed regulation:

Speed 1/min: 375
Del. quantity cm³/
1000H.: 10.0...12.0
Dispersion cm³/
1000H.: (7.0)

Full-load speed regulation:

Speed 1/min: 1100
Del. quantity cm³/
1000H: 52.0...58.0

Start:

Speed 1/min: 100
Del. quantity : -
mind cm³/1000H.: 60.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500
TD travel mm: 1.4...2.2
mm: (1.1...2.5)
2nd speed 1/min: 750
TD travel mm: 3.4...3.8
mm: (2.9...4.3)
3rd speed 1/min: 1050
TD travel mm: 4.6...5.4
mm: (4.3...5.7)

Supply-pump pressure characteristic:

1st speed 1/min: 500
Supply-pump
pressure bar: 2.6...3.2
2nd speed 1/min: 750
Supply-pump
pressure bar: 3.7...4.3
3rd speed 1/min: 1050

Supply-pump
pressure bar: 4.9...5.5

Overflow quantity at overflow valve:

1st speed 1/min: 500
Overflow quantity cm3/10s: (41...83)
2nd speed 1/min: 1050
Overflow quantity cm3/10s: (55...138)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1200
Del. quantity cm3/: 0.0...3.0
1000H.: -
2nd speed 1/min: 1170
Del. quantity cm3/: 0.0...15.0
1000H.: -
3rd speed 1/min: 1130
Del. quantity cm3/: 15.0...55.0
1000H.: -
4th speed 1/min: 1100
Del. quantity cm3/: 52.0...58.0
1000H.: (49.0...61.0)
5th speed 1/min: 1050
Del. quantity cm3/: 68.5...71.5
1000H.: (67.0...73.0)
6th speed 1/min: 900
Del. quantity cm3/: 71.5...74.5
1000H.: (69.5...74.5)
7th speed 1/min: 750
Del. quantity cm3/: 75.0...76.0
1000H.: (72.5...78.5)
8th speed 1/min: 500
Del. quantity cm3/: 59.5...67.5
1000H.: (57.5...69.5)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1050
Del. quantity cm3/: 0..3
1000H.: -

Electr. shutoff:

Speed 1/min: 375
ELAB volt: 12.0
Del. quantity cm3/: 0.0...3.0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
Del. quantity cm3/: 10.0...12.0
1000H.: (6.0...16.0)
2nd speed 1/min: 450

Del. quantity cm3/: 0.0...4.0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130
Del. quantity cm3/: -
ind. 1000H.: 60.0

2nd speed 1/min: 240
Del. quantity cm3/: -
max. 1000H.: 60.0

Shutoff electromagnet:

Cut-in
min. voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm : -
KF mm : 5.0...5.4
MS mm : 0.8...1.2
SVS max. mm : -
XK mm : -
XL mm : -

Remarks:

: C.D.C. # 390 8201

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 U37
Edition : 12.07.89
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 6/12F1250 R373
Type number : 0 460 426 142

Customer-specific information
Customer : CUMMINS

Engine : 6 BTA

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
pressure bar : 250...253

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0,3
(from BDC) : +0,02 (0,04)

Start of delivery block
Piston stroke mm : 1,85
mm : +0,02 (0,06)

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 750
Charge press. hPa: 1000

B15

Setting value mm: 1,3...1,7

Supply-pump pressure:

Speed 1/min: 750
Charge press. hPa: 1000
Setting value bar: 3,2...3,8

Full-load del. with charge press.:

Speed 1/min: 750
Charge press. hPa: 1000
Del. quantity cm³/
1000H.: 84,5...85,5
Dispersion cm³ / : 4,0
1000H : (4,5)

Full-load del. w/out charge press.:

Speed 1/min : 500
Del. quantity cm³/
1000H.: 68,5...69,5

Low-idle speed regulation:

Speed 1/min: 375
Charge press. hPa: -
Del. quantity cm³/
1000H.: 8,0...14,0
Dispersion cm³ / : 5,5
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1300
Charge press. hPa: 1000
Del. quantity cm³/
1000H: 59,0...65,0

Start:

Speed 1/min: 100
Del. quantity : -
mind cm³/1000H.: 70,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600
Charge press. hPa: 1000
TD travel mm: 0,4...1,2
mm: (0,1...1,5)

2nd speed 1/min: 750
Charge press. hPa: 1000
TD travel mm: 1,3...1,7
mm: (0,8...2,2)

3rd speed 1/min: 1050

Charge press. hPa: 1000
TD travel mm: 2,0...2,8
mm: (1,7...3,1)

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
Supply-pump pressure bar: 2,2...2,8
2nd speed 1/min: 750
Charge press. hPa: 1000
Supply-pump pressure bar: 3,2...3,8
3rd speed 1/min: 1050
Charge press. hPa: 1000
Supply-pump pressure bar: 4,5...5,1

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Overflow quantity cm³/10s: 41...83
(26...98)
2nd speed 1/min: 1250
Charge press. hPa: 1000
Overflow quantity cm³/10s: 55...138
(40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700*
Charge-air pressure-setting point hPa: 400
LDA stroke mm: 5,0
Del. quantity cm³/: 77,5...78,5
1000H.: (74,0...82,0)
2nd speed 1/min: 1400
Charge press. hPa: 1000
Del. quantity cm³/: 0,0...3,0
1000H.: -
3rd speed 1/min: 1370
Charge press. hPa: 1000
Del. quantity cm³/: 0,0...15,0
1000H.: -
4th speed 1/min: 1330
Charge press. hPa: 1000
Del. quantity cm³/: 15,0...55,0
1000H.: -
5th speed 1/min: 1300
Charge press. hPa: 1000
Del. quantity cm³/: 59,0...65,0
1000H.: (56,0...68,0)
6th speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm³/: 76,0...79,0
1000H.: (74,5...80,5)
7th speed 1/min: 1050
Charge press. hPa: 1000

Del. quantity cm³/: 80,5...83,5
1000H.: (78,5...85,5)
8th speed 1/min: 750
Charge press. hPa: 1000
Del. quantity cm³/: 84,5...85,5
1000H.: (82,0...88,0)
9th speed 1/min: 700
Charge press. hPa: 400
Del. quantity cm³/: 77,5...78,5
1000H.: (74,0...82,0)
10th speed 1/min: 500
Charge press. hPa: 1000
Del. quantity cm³/: 84,0...92,0
1000H.: -
11th speed 1/min: 500
Charge press. hPa: -
Del. quantity cm³/: 68,5...69,5
1000H.: (65,0...73,0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1250
Del. quantity cm³/: 0..3
1000H.: -

Electr. shutoff:

Speed 1/min: 375
ELAB volt: -
Del. quantity cm³/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
Del. quantity cm³/: 8,0...14,0
1000H.: (6,0...16,0)
2nd speed 1/min: 500
Del. quantity cm³/: 0,0...4,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 250
Charge press. hPa: -
Del. quantity cm³/: -
ind. 1000H: 70,0
2nd speed 1/min: 450
Charge press. hPa: -
Del. quantity cm³/: -
max. 1000H : 88,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	: -
KF	mm	: 5,0...5,4
MS	mm	: 1,0...1,4
SVS max.	mm	: 2,0
XK	mm	: 21,8...23,8
XL	mm	: 13,8...17,2

Remarks:

: C.D.C. # 391 7002

* Correction at adjusting nut (46)

Operate control lever after each manifold-pressure compensator pressure change.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN 2,0 P
Edition : 18.07.89
replaces : 10.03.89
Calibrating oil : ISO 4113

Injection pump : VE 4/ 8F2300 R317
Type number : O 460 484 020

Customer-specific information
Customer : RNUR

Engine : F8Q-A06

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
pressure bar : 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6
x Wall thickness : 2
x Length mm : 450

Start of delivery
Prestroke mm : -
(from BDC): -

Indicator setting:
Piston stroke mm: 1.0
Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1250
Setting value mm: 4,1...4,5
KSB solenoid-operated
valve volt: -

Supply-pump pressure:

Speed 1/min: 1250
Setting value bar: 4,5...5,1
KSB solenoid-operated
valve volt: -

Full-load del. w/out charge press.:

Speed 1/min : 1250
Del.quantity cm3/
1000H.: 31,6...32,6
KSB solenoid-operated
valve volt: -
Dispersion cm3/: 2,5
1000H.: (3,0)

Low-idle speed regulation:

Speed 1/min: 410
Del.quantity cm3/
1000H.: 6,5...10,5
KSB solenoid-operated
valve volt: -
Dispersion cm3/: 2,5
1000H.: (3,0)
Residual-Delivery Setting
Speed 1/min: 500
Del.quantity cm3/
1000H.: 1,0...5,0
KSB-Solenoid-Operated
valve Volt : -

Full-load speed regulation:

Speed 1/min: 2450
Del.quantity cm3/
1000H.: 23,0...29,0
KSB solenoid-operated
valve volt: -

Start:

Speed 1/min: 100
Del.quantity : -
mind cm3/1000H.: 40,0
KSB solenoid-operated
valve volt: -

Load-dependent start of delivery:

Speed 1/min: 1250
KSB solenoid-operated
valve volt: -

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 310
 TD travel mm: 0,6...3,0
 mm: -
 KSB solenoid-operated valve volt: 12,0
 2nd speed 1/min: 500
 TD travel mm: 1,9...4,3
 mm: -
 KSB solenoid-operated valve volt: 12,0
 3rd speed 1/min: 750
 TD travel mm: 1,9...2,7
 mm: (1,6...3,0)
 KSB solenoid-operated valve volt: -
 4th speed 1/min: 1250
 TD travel mm: 4,1...4,5
 mm: (3,6...5,0)
 KSB solenoid-operated valve volt: -
 5th speed 1/min: 2000
 TD travel mm: 7,4...8,2
 mm: (7,1...8,5)
 KSB solenoid-operated valve volt: -
 6th speed 1/min: 2250
 TD travel mm: 7,8...8,6
 mm: -
 KSB solenoid-operated valve volt: -

Supply-pump pressure characteristic:

1st speed 1/min: 750
 Supply-pump pressure bar: 3,1...3,7
 KSB solenoid-operated valve volt: -
 2nd speed 1/min: 1250
 Supply-pump pressure bar: 4,5...5,1
 KSB solenoid-operated valve volt: -
 3rd speed 1/min: 2250
 Supply-pump pressure bar: 7,0...7,6
 KSB solenoid-operated valve volt: -

Overflow quantity at overflow valve:

1st speed 1/min: 750
 KSB solenoid-operated valve volt: -
 Overflow quantity cm³/10s: (41...83)
 quantity cm³/10s: (26...98)
 2nd speed 1/min: 2250
 KSB solenoid-operated valve volt: -

Overflow : 55...138
 quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2950
 KSB solenoid-operated valve volt: -
 Del.quantity cm³/: 0,0...5,0
 1000H.: (0,0...5,0)
 2nd speed 1/min: 2650
 KSB solenoid-operated valve volt: -
 Del.quantity cm³/: 7,0...15,0
 1000H.: (6,0...16,0)
 3rd speed 1/min: 2450
 KSB solenoid-operated valve volt: -
 Del.quantity cm³/: 23,0...29,0
 1000H.: (22,0...30,0)
 4th speed 1/min: 2250
 KSB solenoid-operated valve volt: -
 Del.quantity cm³/: 31,2...33,2
 1000H.: (29,9...34,5)
 5th speed 1/min: 2000
 KSB solenoid-operated valve volt: -
 Del.quantity cm³/: 30,6...32,6
 1000H.: (29,3...33,9)
 6th speed 1/min: 1625
 KSB solenoid-operated valve volt: -
 Del.quantity cm³/: 30,0...33,0
 1000H.: (29,2...33,8)
 7th speed 1/min: 1250
 KSB solenoid-operated valve volt: -
 Del.quantity cm³/: 31,6...32,6
 1000H.: (29,8...34,4)
 8th speed 1/min: 750
 KSB solenoid-operated valve volt: -
 Del.quantity cm³/: 30,3...33,3
 1000H.: (29,5...34,1)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 400
 ELAB volt: -
 Del.quantity cm³/: 0,0...3,0
 max. 1000H.: -

Idle delivery:

1st speed 1/min: 410

KSB solenoid-operated
valve volt: -
Del. quantity cm³/: 6,5...10,5
1000H.: (4,5...12,5)

High Idle:

Speed 1/min: 500
Del. quantity cm³/: 7,0...11,0
1000H.: (5,0...13,0)

KSB-Solenoid-operated
valve Volt: -

Automatic starting fuel delivery:

1st speed 1/min: 210
KSB solenoid-operated
valve volt: -
Del. quantity cm³/: -
ind. 1000H: 45,0

2nd speed 1/min: 310
KSB solenoid-operated
valve volt: -
Del. quantity cm³/: -
max. 1000H : 45,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	: 3,2...3,4
KF	mm	: 5,3...5,7
MS	mm	: 1,1...1,5
SVS max.	mm	: 2,7
XK	mm	: 18,7...20,7
XL	mm	: 11,2...14,6

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN 2,0 P1
Edition : 17.07.89
replaces : 09.05.89
Calibrating oil : ISO 4113

Injection pump : VE 4/ 8F2300 R317-2
Type number : 0 460 484 030

Customer-specific information
Customer : RNUR

Engine : F8Q-706

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
pressure bar : 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6
x Wall thickness : 2
x Length mm : 450

Start of delivery
Prestroke mm : -
(from BDC) : -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1250
Setting value mm: 4,1...4,5
KSB solenoid-operated
valve volt: -

Supply-pump pressure:

Speed 1/min: 1250
Setting value bar: 4,5...5,1

KSB solenoid-operated
valve volt: -

Full-load del. w/out charge press.:

Speed 1/min: 1250
Del. quantity cm³/
1000H.: 31,6...32,6
KSB solenoid-operated
valve volt: -
Dispersion cm³/: 2,5
1000H.: (3,0)

Low-idle speed regulation:

Speed 1/min: 410
Del. quantity cm³/
1000H.: 6,5...10,5
KSB solenoid-operated
valve volt: -
Dispersion cm³/: 2,5
1000H.: (3,0)

Residual-Delivery Setting

Speed 1/min: 500
Charge press. hPa: -
Del. quantity cm³/
1000H.: 1,0...5,0

Full-load speed regulation:

Speed 1/min: 2450
Del. quantity cm³/
1000H.: 23,0...29,0
KSB solenoid-operated
valve volt: -

Start:

Speed 1/min: 100
Del. quantity : -
mind cm³/1000H.: 40,0
KSB solenoid-operated
valve volt: -

Load-dependent start of delivery:

Speed 1/min: 1250

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 310
TD travel mm: 0,6...3,0
mm: -
KSB solenoid-operated
valve volt: 12,0
2nd speed 1/min: 500

TD travel mm: 1,9...4,3
 mm: -
 KSB solenoid-operated valve volt: 12,0
 3rd speed 1/min: 750
 TD travel mm: 1,9...2,7
 mm: (1,6...3,0)
 KSB solenoid-operated valve volt: -
 4th speed 1/min: 1250
 TD travel mm: 4,1...4,5
 mm: (3,6...5,0)
 KSB solenoid-operated valve volt: -
 5th speed 1/min: 2000
 TD travel mm: 7,4...8,2
 mm: (7,1...8,5)
 KSB solenoid-operated valve volt: -
 6th speed 1/min: 2250
 TD travel mm: 7,8...8,6
 mm: -
 KSB solenoid-operated valve volt: -

Supply-pump pressure characteristic:

1st speed 1/min: 750
 Supply-pump pressure bar: 3,1...3,7
 KSB solenoid-operated valve volt: -
 2nd speed 1/min: 1250
 Supply-pump pressure bar: 4,5...5,1
 KSB solenoid-operated valve volt: -
 3rd speed 1/min: 2250
 Supply-pump pressure bar: 7,0...7,6
 KSB solenoid-operated valve volt: -

Overflow quantity at overflow valve:

1st speed 1/min: 750
 KSB solenoid-operated valve volt: -
 Overflow quantity cm³/10s: 41...83
 (26...98)
 2nd speed 1/min: 2250
 KSB solenoid-operated valve volt: -
 Overflow quantity cm³/10s: 55...138
 (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2950

KSB solenoid-operated valve volt: -
 Del.quantity cm³/1000H.: 0,0...5,0
 2nd speed 1/min: 2650
 KSB solenoid-operated valve volt: -
 Del.quantity cm³/1000H.: 7,0...15,0
 (6,0...16,0)
 3rd speed 1/min: 2450
 KSB solenoid-operated valve volt: -
 Del.quantity cm³/1000H.: 23,0...29,0
 (22,0...30,0)
 4th speed 1/min: 2250
 KSB solenoid-operated valve volt: -
 Del.quantity cm³/1000H.: 31,2...33,2
 (29,9...34,5)
 5th speed 1/min: 2000
 KSB solenoid-operated valve volt: -
 Del.quantity cm³/1000H.: 30,6...32,6
 (29,3...33,9)
 6th speed 1/min: 1625
 KSB solenoid-operated valve volt: -
 Del.quantity cm³/1000H.: 30,0...33,0
 (29,2...33,8)
 7th speed 1/min: 1250
 KSB solenoid-operated valve volt: -
 Del.quantity cm³/1000H.: 31,6...32,6
 (29,8...34,4)
 8th speed 1/min: 750
 KSB solenoid-operated valve volt: -
 Del.quantity cm³/1000H.: 30,3...33,3
 (29,5...34,1)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 400
 ELAB volt: -
 Del.quantity cm³/max. 1000H.: 0,0...3,0

Idle delivery:

1st speed 1/min: 410
 KSB solenoid-operated valve volt: -
 Del.quantity cm³/1000H.: 6,5...10,5
 (4,5...12,5)

High Idle:

Speed 1/min: 500
Del.quantity cm³/: 7,0...11,0
1000H.: (5,0...13,0)
KSB-Solenoid-operated
valve Volt: -

Residual:

Speed 1/min: 500
Del.quantity : 1,0...5,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 210
KSB solenoid-operated
valve volt: -
Del.quantity cm³/: -
ind. 1000H: 45,0

2nd speed 1/min: 310
KSB solenoid-operated
valve volt: -
Del.quantity cm³/: -
max. 1000H : 45,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	: 3,2...3,4
KF	mm	: 5,3...5,7
MS	mm	: 1,1...1,5
SWS max.	mm	: 2,7
XK	mm	: 18,7...20,7
XL	mm	: 11,2...14,6

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV 2,4 S6
Edition : 18.07.89
replaces : 03.02.89
Calibrating oil : ISO 4113

Injection pump : VE 5/ 8F2200 L336
Type number : 0 460 485 001

Customer-specific information
Customer : AUDI

Engine : 153-2.4L

Power k: 60.0
Speed 1/mi: 4400

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : -
(from BDC) : -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1250
Setting value mm: 2.7...3.1
KSB solenoid-operated
valve volt: 12.0

Supply-pump pressure:

Speed 1/min: 1250
Setting value bar: 5.7...6.3
KSB solenoid-operated
valve volt: 12.0

Full-load del. w/out charge press.:

Speed 1/min : 1250
Del. quantity cm³/
1000H.: 34.0...35.0
KSB solenoid-operated
valve volt: 12.0
Dispersion cm³/: 2.0
1000H.: -

Low-idle speed regulation:

Speed 1/min: 415
Del. quantity cm³/
1000H.: 7.0...9.0

KSB solenoid-operated
valve volt: 12.0

Dispersion cm³/: 2.0
1000H.: (3.0)

Residual-Delivery Setting

Speed 1/min: 540
Del. quantity cm³/
1000H.: 2.0...3.0

KSB-Solenoid-Operated
valve Volt : 12.0

Full-load speed regulation:

Speed 1/min: 2525
Del. quantity cm³/
1000H: 10.0...14.0

KSB solenoid-operated
valve volt: 12.0

Start:

Speed 1/min: 100
Del. quantity : -
mind cm³/1000H.: 35.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500*
TD travel mm: 2.3...2.7
mm: (1.5...3.5)

KSB solenoid-operated
valve volt: -

2nd speed 1/min: 750
TD travel mm: 0.6...1.4
mm: (0.3...1.7)

KSB solenoid-operated
valve volt: 12.0
3rd speed 1/min: 1250
TD travel mm: 2.7...3.1
mm: (2.2...3.6)

KSB solenoid-operated
valve volt: 12.0
4th speed 1/min: 2000
TD travel mm: 5.9...6.7
mm: (5.6...7.0)

KSB solenoid-operated
valve volt: 12.0

Supply-pump pressure characteristic:

1st speed 1/min: 500
Supply-pump
pressure bar: 5.1...6.3

KSB solenoid-operated
valve volt: -

2nd speed 1/min: 750

Supply-pump
pressure bar: 4.6...5.2

KSB solenoid-operated
valve volt: 12.0

3rd speed 1/min: 1250

Supply-pump
pressure bar: 5.7...6.3

KSB solenoid-operated
valve volt: 12.0

4th speed 1/min: 2200

Supply-pump
pressure bar: 7.7...8.3
bar: (7.5...8.5)

KSB solenoid-operated
valve volt: 12.0

Overflow quantity at overflow valve:

1st speed 1/min: 750
KSB solenoid-operated
valve volt: 12.0
Overflow : 41...83
quantity cm³/10s: (26...98)

2nd speed 1/min: 2200

KSB solenoid-operated
valve volt: 12.0

Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2700
KSB solenoid-operated
valve volt: 12.0
Del. quantity cm³/: 0.0...6.0
1000H.: -

2nd speed 1/min: 2525

KSB solenoid-operated
valve volt: 12.0

Del. quantity cm³/: 10.0...14.0
1000H.: (8.0...16.0)

3rd speed 1/min: 2425

KSB solenoid-operated
valve volt: 12.0

Del. quantity cm³/: 18.0...28.0
1000H.: (17.0...29.0)

4th speed 1/min: 2200

KSB solenoid-operated
valve volt: 12.0

Del. quantity cm³/: 28.2...30.2
1000H.: (27.0...31.4)

5th speed 1/min: 1250

KSB solenoid-operated
valve volt: 12.0

Del. quantity cm³/: 34.0...35.0
1000H.: (32.2...36.7)

6th speed 1/min: 750

KSB solenoid-operated
valve volt: 12.0

Del. quantity cm³/: 29.7...32.7
1000H.: (28.2...34.2)

7th speed 1/min: 500

KSB solenoid-operated
valve volt: 12.0

Del. quantity cm³/: 28.5...33.5
1000H.: (26.0...36.0)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 415
ELAB volt: -
Del. quantity cm³/: 0.0...3.0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 415
KSB solenoid-operated
valve volt: 12.0
Del. quantity cm³/: 7.0...9.0
1000H.: (4.0...12.0)

2nd speed 1/min: 365

KSB solenoid-operated
valve volt: 12.0

Del. quantity cm³/: 14.5...17.5
1000H.: (12.0...20.0)

Residual:

Speed 1/min: 490
Del. quantity : 2.5...4.5
1000H.: (1.0...6.0)

KSB-Solenoid-operated
valve Volt: 12.0

Automatic starting fuel delivery:

1st speed 1/min: 180
KSB solenoid-operated
valve volt: 12.0
Del. quantity cm³/: -
ind. 1000H: 35.0

2nd speed 1/min: 380
KSB solenoid-operated
valve volt: 12.0
Del. quantity cm³/: -
max. 1000H : 40.0

Shutoff electromagnet:

Cut-in
min. voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm	: 3.1...3.5
KF	mm	: K-0T
MS	mm	: 1.2...1.6
SVS max.	mm	: -

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV 2,4 S7
Edition : 19.07.89
replaces : 11.05.89
Calibrating oil : ISO 4113

Injection pump : VE 5/ 8F2100 L358
Type number : 0 460 485 003

Customer-specific information
Customer : VW

Engine : 153-2,4L.T4

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1250
Setting value mm: 2,8...3,2

Supply-pump pressure:

Speed 1/min: 1250
Setting value bar: 5,7...6,3

Full-load del. w/out charge press.:

Speed 1/min : 1250
Del.quantity cm3/
1000H.: 36,0...37,0
Dispersion cm3/: 2,0
1000H.: -

Low-idle speed regulation:

Speed 1/min: 415
Del.quantity cm3/
1000H.: 7,0...9,0
Dispersion cm3/: 2,0
1000H.: -
Residual-Delivery Setting
Speed 1/min: 540
Del.quantity cm3/
1000H.: 2,0...3,0

Full-load speed regulation:

Speed 1/min: 2400
Del.quantity cm3/
1000H.: 10,0...14,0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm3/1000H.: 35,0

Load-dependent start of delivery:

Speed 1/min: 1250

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 750
TD travel mm: 0,6...1,4
mm: (0,3...1,7)

2nd speed 1/min: 1250
TD travel mm: 2,8...3,2
mm: (2,3...3,7)

3rd speed 1/min: 1700
TD travel mm: 5,1...5,9
mm: (4,8...6,2)

4th speed 1/min: 2100
TD travel mm: 5,3...6,1
mm: (5,0...6,4)

Supply-pump pressure characteristic:

1st speed 1/min: 600
Supply-pump
pressure bar: 4,2...4,8
2nd speed 1/min: 1250

Supply-pump pressure bar: 5,7...6,3
3rd speed 1/min: 2100
Supply-pump pressure bar: 7,7...8,3

Overflow quantity at overflow valve:

1st speed 1/min: 600
Overflow quantity cm3/10s: 41...83
2nd speed 1/min: 2100
Overflow quantity cm3/10s: 55...138

Delivery-quant. and breakaway char.:

1st speed 1/min: 2600
Del. quantity cm3/: 0,0...6,0
1000H.: -
2nd speed 1/min: 2400
Del. quantity cm3/: 10,0...14,0
1000H.: (8,0...16,0)
3rd speed 1/min: 2300
Del. quantity cm3/: 17,0...27,0
1000H.: (16,0...28,0)
4th speed 1/min: 2100
Del. quantity cm3/: 30,5...32,5
1000H.: (29,3...33,7)
5th speed 1/min: 1250
Del. quantity cm3/: 36,0...37,0
1000H.: (34,3...38,7)
6th speed 1/min: 600
Del. quantity cm3/: 31,0...34,0
1000H.: (29,5...35,5)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 415
ELAB volt: -
Del. quantity cm3/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 415
Del. quantity cm3/: 7,0...9,0
1000H.: (4,0...12,0)

Residual:

Speed 1/min: 490
Del. quantity : 2,3...4,3
1000H.: (0,8...5,8)

Automatic starting fuel delivery:

1st speed 1/min: 180
Del. quantity cm3/: -
ind. 1000H: 35,0

2nd speed 1/min: 380
Del. quantity cm3/: -
max. 1000H : 37,0

Shutoff electromagnet:

Cut-in min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K mm : 3,2...3,4
KF mm : K-0T
MS mm : 1,2...1,6
SVS max. mm : 2,4

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FOR 1,6 A2
Edition : 17.07.89
replaces : 19.12.88
Calibrating oil : ISO 4113

Injection pump : VE 4/ 9F2400 R125-2
Type number : 0 460 494 186

Customer-specific information
Customer : FORD

Engine : 1,6 L.IDI

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
pressure bar : 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6
x Wall thickness : 2
x Length mm : 450

Start of delivery
Prestroke mm : -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500
Setting value mm: 4,3...4,7
KSB solenoid-operated
valve volt: 12,0

Supply-pump pressure:

Speed 1/min: 1500
Setting value bar: 5,3...5,9

KSB solenoid-operated
valve volt: 12,0

Full-load del. w/out charge press.:

Speed 1/min : 1750
Del.quantity cm3/
1000H.: 28,8...29,8
KSB solenoid-operated
valve volt: 12,0
Dispersion cm3/: 2,5
1000H.: -

Low-idle speed regulation:

Speed 1/min: 440
Del.quantity cm3/
1000H.: 7,0...11,0
KSB solenoid-operated
valve volt: 12,0
Dispersion cm3/: 2,0
1000H.: -

Full-load speed regulation:

Speed 1/min: 2675
Del.quantity cm3/
1000H.: 7,5...13,5
KSB solenoid-operated
valve volt: 12,0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm3/1000H.: 50,0
KSB solenoid-operated
valve volt: 12,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600
TD travel mm: 2,2...4,2
mm: -
KSB solenoid-operated
valve volt: -
2nd speed 1/min: 1000
TD travel mm: 1,3...2,1
mm: (1,0...2,4)
KSB solenoid-operated
valve volt: 12,0
3rd speed 1/min: 1500
TD travel mm: 4,3...4,7
mm: (3,8...5,2)
KSB solenoid-operated
valve volt: 12,0

4th speed 1/min: 2000
TD travel mm: 6,8...7,6
mm: (6,5...7,9)

KSB solenoid-operated
valve volt: 12,0

Supply-pump pressure characteristic:

1st speed 1/min: 600
Supply-pump
pressure bar: 3,1...3,7

KSB solenoid-operated
valve volt: 12,0

2nd speed 1/min: 1500
Supply-pump
pressure bar: 5,3...5,9

KSB solenoid-operated
valve volt: 12,0

3rd speed 1/min: 2000
Supply-pump
pressure bar: 6,6...7,2

KSB solenoid-operated
valve volt: 12,0

Overflow quantity at overflow valve:

1st speed 1/min: 600
KSB solenoid-operated
valve volt: 12,0
Overflow : 41...83
quantity cm³/10s: (26...98)

2nd speed 1/min: 2400
KSB solenoid-operated
valve volt: 12,0
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2950
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: 0,0...2,0
1000H.: -

2nd speed 1/min: 2650
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: 7,5...13,5
1000H.: (6,5...14,5)

3rd speed 1/min: 2550
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: 18,5...26,5
1000H.: (17,5...27,5)

4th speed 1/min: 2400
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: 27,2...29,2
1000H.: (26,0...30,4)

5th speed 1/min: 1750

KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: 28,8...29,8
1000H.: (27,1...31,5)

6th speed 1/min: 1000
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: 24,1...27,1
1000H.: (23,4...27,8)

7th speed 1/min: 600
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: 23,0...26,0
1000H.: (21,5...27,5)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 440
ELAB volt: -
Del. quantity cm³/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 440
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: 7,0...11,0
1000H.: (5,0...13,0)

2nd speed 1/min: 475
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: 2,5...7,5
1000H.: (0,5...9,5)

3rd speed 1/min: 570
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: 0,0...3,6
1000H.: -

Arrangement of drivers on engine-
speed lever for exhaust-gas-
recirculation valve linkage (guage)

1st speed 1/min: 1100
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: 10,6...11,6
1000H.: (9,1...13,1)

Automatic starting fuel delivery:

1st speed 1/min: 400
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: -
ind. 1000H.: 30,0

2nd speed 1/min: 500
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: -
max. 1000H : 30,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	: 3,2...3,4
KF	mm	: 5,7...6,0
MS	mm	: 1,6..1,85
SVS max.	mm	: 3,4

Remarks:

Note regarding Swiss version:

In the event of "smoke" complaint,
turn full-load screw by 30° (in a
counter-clockwise direction).
After correcting full-load delivery,
have exhaust-gas-recirculation valve
adjusted by Ford Service.

When setting and checking pump on
injection-pump test bench, applicable
full-load deliveries are 0,5 cm³ /
1000 strokes less than indicated in
test-specification sheet.
For adjustment of switching point
(EGR valve), include 12.0 mm spacer
at third fuel-delivery stop.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV 1,6 X12
Edition : 19.07.89
replaces : 10.11.88
Calibrating oil : ISO 4113

Injection pump : VE 4/ 9F2250 R293
Type number : 0 460 494 221

Customer-specific information
Customer : VW

Engine : 086T-1.6L

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : -
(from BDC) : -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1250
Charge press. hPa: 750
Setting value mm: 3,0...3,4

Supply-pump pressure:

Speed 1/min: 1250
Charge press. hPa: 750
Setting value bar: 4,9...5,5

Full-load del. with charge press.:

Speed 1/min: 1500
Charge press. hPa: 750
Del. quantity cm³/
1000H.: 42,0...43,0
Dispersion cm³/
1000H.: (3,0)

Full-load del. w/out charge press.:

Speed 1/min: 700
Del. quantity cm³/
1000H.: 26,5...27,5

Low-idle speed regulation:

Speed 1/min: 425
Del. quantity cm³/
1000H.: 9,0...11,0
Dispersion cm³/
1000H.: (3,0)

Residual-Delivery Setting

Speed 1/min: 550
Del. quantity cm³/
1000H.: 2,0...3,0

Full-load speed regulation:

Speed 1/min: 2525
Charge press. hPa: 750
Del. quantity cm³/
1000H.: 13,0...17,0

Start:

Speed 1/min: 100
Del. quantity : -
mind cm³/1000H.: 35,0

Load-dependent start of delivery:

Speed 1/min: 1250

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000
Charge press. hPa: 750
TD travel mm: 1,7...2,5
mm: (1,4...2,8)

2nd speed 1/min: 1250
Charge press. hPa: 750
TD travel mm: 3,0...3,4
mm: (2,5...3,9)

3rd speed 1/min: 2000
Charge press. hPa: 750

TD travel mm: 6,4...7,2
mm: (6,1...7,5)
4th speed 1/min: 2250
Charge press. hPa: 750
TD travel mm: 7,0...7,8
mm: (6,7...8,1)

Supply-pump pressure characteristic:

1st speed 1/min: 700
Charge press. hPa: 750
Supply-pump pressure bar: 3,3...3,9
2nd speed 1/min: 1250
Charge press. hPa: 750
Supply-pump pressure bar: 4,9...5,5
3rd speed 1/min: 2250
Charge press. hPa: 750
Supply-pump pressure bar: 7,7...8,3

Overflow quantity at overflow valve:

1st speed 1/min: 700
Charge press. hPa: -
Overflow quantity cm³/10s: 41...83
(26...98)
2nd speed 1/min: 2250
Charge press. hPa: 750
Overflow quantity cm³/10s: 55...138
(40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 900*
Charge-air pressure-setting point hPa: 300
LDA stroke mm: 5,5
Del. quantity cm³/1000H.: 32,5...33,5
(30,0...36,0)
2nd speed 1/min: 2650
Charge press. hPa: 750
Del. quantity cm³/1000H.: 0,0...6,0
3rd speed 1/min: 2525
Charge press. hPa: 750
Del. quantity cm³/1000H.: 13,0...17,0
(11,0...19,0)
4th speed 1/min: 2425
Charge press. hPa: 750
Del. quantity cm³/1000H.: 26,5...36,5
(25,5...37,5)
5th speed 1/min: 2250
Charge press. hPa: 750
Del. quantity cm³/1000H.: 36,3...38,3
(35,1...39,5)
6th speed 1/min: 1500
Charge press. hPa: 750

Del. quantity cm³/1000H.: 42,0...43,0
(40,3...44,7)
7th speed 1/min: 900
Charge press. hPa: 300
Del. quantity cm³/1000H.: 32,5...33,5
(30,0...36,0)
8th speed 1/min: 700
Charge press. hPa: 750
Del. quantity cm³/1000H.: 34,0...37,0
(32,5...38,5)
9th speed 1/min: 700
Charge press. hPa: -
Del. quantity cm³/1000H.: 26,5...27,5
(24,0...30,0)
10th speed 1/min: 600
Charge press. hPa: -
Del. quantity cm³/1000H.: 25,0...30,0
(22,5...32,5)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 425
ELAB volt: -
Del. quantity cm³/1000H.: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 425
Del. quantity cm³/1000H.: 9,0...11,0
(4,5...15,5)

High Idle:

Speed 1/min: 525
Del. quantity cm³/1000H.: 9,0...11,0
(5,0...15,0)

Residual:

Speed 1/min: 500
Del. quantity : 2,5...4,5
1000H.: (0,0...7,0)

Automatic starting fuel delivery:

1st speed 1/min: 150
Del. quantity cm³/ind. : -
1000H.: 35,0

2nd speed 1/min: 350
Del. quantity cm³/max. : -
1000H.: 37,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	: K1
KF	mm	: -
MS	mm	: 1,1...1,5
SVS max.	mm	: 3,1

* Correction at adjusting nut (46)

Operate control lever after each manifold-pressure compensator pressure change.

Adjust damper rate:

Engine speed n =	1000 min ⁻¹
Fuel delivery =	11.0...13.0 cm ³ / 1000 strokes
	(8.0...16.0) cm ³ / 1000 strokes

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FOR 1,6 A3
Edition : 17.07.89
replaces : 19.12.88
Calibrating oil : ISO 4113

Injection pump : VE 4/ 9F2400 R125-3
Type number : D 460 494 233

Customer-specific information
Customer : FORD/GB

Engine : 1,6 L.IDI

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
pressure bar : 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6
x Wall thickness : 2
x Length mm : 450

Start of delivery
Prestroke mm : -
(from BDC) : -

Indicator setting:
Piston stroke mm: 0.92
Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500
Setting value mm: 5,7...6,1
KSB solenoid-operated
valve volt: 12,0

Supply-pump pressure:

C07

Speed 1/min: 1500
Setting value bar: 5,3...5,9
KSB solenoid-operated
valve volt: 12,0

Full-load del. w/out charge press.:

Speed 1/min : 1750
Del.quantity cm3/
1000H.: 28,8...29,8
KSB solenoid-operated
valve volt: 12,0
Dispersion cm3/: 2,5
1000H.: (2,5)

Low-idle speed regulation:

Speed 1/min: 440
Del.quantity cm3/
1000H.: 7,0...11,0
KSB solenoid-operated
valve volt: 12,0
Dispersion cm3/: 2,0
1000H.: (2,0)

Full-load speed regulation:

Speed 1/min: 2675
Del.quantity cm3/
1000H: 7,5...13,5
KSB solenoid-operated
valve volt: 12,0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm3/1000H.: 50,0
KSB solenoid-operated
valve volt: 12,0

Load-dependent start of delivery:

Speed 1/min: 1100
KSB solenoid-operated
valve volt: 12,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600
TD travel mm: 2,8...5,8
mm: -
KSB solenoid-operated
valve volt: 12,0
2nd speed 1/min: 800

TD travel mm: 2,8...3,6
mm: (2,5...3,9)
3rd speed 1/min: 1500
TD travel mm: 5,7...6,1
mm: (5,2...6,6)
KSB solenoid-operated
valve volt: 12,0
4th speed 1/min: 2000
TD travel mm: 7,5...8,3
mm: (7,2...8,6)
KSB solenoid-operated
valve volt: 12,0

Supply-pump pressure characteristic:

1st speed 1/min: 600
Supply-pump
pressure bar: 3,1...3,7
KSB solenoid-operated
valve volt: 12,0
2nd speed 1/min: 1500
Supply-pump
pressure bar: 5,3...5,9
KSB solenoid-operated
valve volt: 12,0
3rd speed 1/min: 2000
Supply-pump
pressure bar: 6,6...7,2
KSB solenoid-operated
valve volt: 12,0

Overflow quantity at overflow valve:

1st speed 1/min: 600
KSB solenoid-operated
valve volt: 12,0
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 2400
KSB solenoid-operated
valve volt: 12,0
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2950
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: 0,0...2,0
1000H.: -
2nd speed 1/min: 2675
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: 7,5...13,5
1000H.: (6,5...14,5)
3rd speed 1/min: 2550
KSB solenoid-operated
valve volt: 12,0

Del. quantity cm³/: 18,5...26,5
1000H.: (17,5...29,5)
4th speed 1/min: 2400
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: 27,2...29,2
1000H.: (26,0...30,4)
5th speed 1/min: 1750
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: 28,8...29,8
1000H.: (27,1...31,5)
6th speed 1/min: 1000
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: 24,1...27,1
1000H.: (23,4...27,8)
7th speed 1/min: 600
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: 23,0...26,0
1000H.: (21,5...27,5)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 440
ELAB volt: -
Del. quantity cm³/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 440
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: 7,0...11,0
1000H.: (5,0...13,0)
2nd speed 1/min: 475
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: 2,5...7,5
1000H.: (0,5...9,5)
3rd speed 1/min: 570
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: 0,0...3,6
1000H.: -

Arrangement of drivers on engine-
speed lever for exhaust-gas-
recirculation valve linkage (guage)

1st speed 1/min: 1100
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: 10,6...11,6
1000H.: (9,1...13,1)

Automatic starting fuel delivery:

1st speed 1/min: 400
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: -
ind. 1000H: 30,0

2nd speed 1/min: 500
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: -
max. 1000H : 30,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	: 3,4...3,6
KF	mm	: 5,6...6,0
MS	mm	: 1,5...1,9
SVS max.	mm	: 3,0

Remarks:

Note regarding Swiss version:

In the event of "smoke" complaint,
turn full-load screw by 30° (in a
counter-clockwise direction).
After correcting full-load delivery,
have exhaust-gas-recirculation valve
adjusted by Ford Service.

When setting and checking pump on
injection-pump test bench, applicable
full-load deliveries are 0.5 cm³ /
1000 strokes less than indicated in
test-specification sheet.

For adjustment of switching point
(EGR valve), include 12.0 mm spacer
at third fuel-delivery stop.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA 1,7 P5
Edition : 19.07.89
replaces : 16.01.89
Calibrating oil : ISO 4113

Injection pump : VE 4/ 9F2100 R343
Type number : 0 460 494 246

Customer-specific information
Customer : FIAT-AUTO

Engine : M710 DT 19 D

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
pressure bar : 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6
x Wall thickness : 2
x Length mm : 450

Start of delivery
Prestroke mm : -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500
Charge press. hPa: 1000
Setting value mm: 5,5...5,9
KSB solenoid-operated
valve volt: 12,0

Supply-pump pressure:

Speed 1/min: 1500
Charge press. hPa: 1000

C10

Setting value bar: 5,3...5,9
KSB solenoid-operated
valve volt: 12,0

Full-load del. with charge press.:

Speed 1/min: 1500
Charge press. hPa: 1000
Del. quantity cm³/
1000H.: 52,0...53,0

KSB solenoid-operated
valve volt: 12,0
Dispersion cm³/ : 2,5
1000H : (2,5)

Full-load del. w/out charge press.:

Speed 1/min : 600
Del. quantity cm³/
1000H.: 40,0...41,0

KSB solenoid-operated
valve volt: 12,0

Low-idle speed regulation:

Speed 1/min: 400
Del. quantity cm³/
1000H.: 11,0...15,0

KSB solenoid-operated
valve volt: 12,0
Dispersion cm³/: 2,5
1000H.: (2,5)

Residual-Delivery Setting

Speed 1/min: 700
Del. quantity cm³/
1000H.: 4,0...6,0

KSB-Solenoid-Operated
valve Volt : 12,0

Full-load speed regulation:

Speed 1/min: 2300
Charge press. hPa: 1000
Del. quantity cm³/
1000H: 30,0...36,0

KSB solenoid-operated
valve volt: 12,0

Start:

Speed 1/min: 100
Del. quantity : -
mind cm³/1000H.: 55,0
KSB solenoid-operated
valve volt: 12,0

Load-dependent start of delivery:

Speed 1/min: 1500
Charge press. hPa: -

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
TD travel mm: 3,2...4,8
mm: (2,5...5,5)

KSB solenoid-operated
valve volt: -
2nd speed 1/min: 1000
Charge press. hPa: 1000
TD travel mm: 2,5...5,5
mm: -

KSB solenoid-operated
valve volt: -
3rd speed 1/min: 800
Charge press. hPa: 1000
TD travel mm: 1,5...2,3
mm: (1,2...2,6)

KSB solenoid-operated
valve volt: 12,0
4th speed 1/min: 1500
Charge press. hPa: 1000
TD travel mm: 5,5...5,9
mm: (5,2...6,2)

KSB solenoid-operated
valve volt: 12,0
5th speed 1/min: 2100
Charge press. hPa: 1000
TD travel mm: 8,2...9,0
mm: (7,9...9,3)

KSB solenoid-operated
valve volt: 12,0

Supply-pump pressure characteristic:

1st speed 1/min: 800
Charge press. hPa: 1000
Supply-pump
pressure bar: 3,2...3,8

KSB solenoid-operated
valve volt: 12,0
2nd speed 1/min: 1500
Charge press. hPa: 1000

Supply-pump
pressure bar: 5,3...5,9

KSB solenoid-operated
valve volt: 12,0
3rd speed 1/min: 2100
Charge press. hPa: 1000

Supply-pump
pressure bar: 7,0...7,6

KSB solenoid-operated
valve volt: 12,0

Overflow quantity at overflow valve:

1st speed 1/min: 800
Charge press. hPa: 1000
KSB solenoid-operated
valve volt: 12,0
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 2100
Charge press. hPa: 1000
KSB solenoid-operated
valve volt: 12,0
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 800*
Charge-air pressure-setting
point hPa: 400
LDA stroke mm: 6,2
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³/: 43,5...44,5
1000H.: (41,5...46,5)

2nd speed 1/min: 2650
Charge press. hPa: 1000
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³/: 0,0...7,0
1000H.: -

3rd speed 1/min: 2450
Charge press. hPa: 1000
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³/: 12,0...20,0
1000H.: (11,0...21,0)

4th speed 1/min: 2300
Charge press. hPa: 1000
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³/: 30,0...36,0
1000H.: (29,0...37,0)

5th speed 1/min: 2100
Charge press. hPa: 1000
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³/: 50,5...53,5
1000H.: (49,5...54,5)

6th speed 1/min: 1500
Charge press. hPa: 1000
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³/: 52,0...53,0
1000H.: (50,5...54,5)

7th speed 1/min: 800
Charge press. hPa: 1000
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³/: 55,5...58,5
1000H.: -

8th speed 1/min: 800
Charge press. hPa: 400
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: 43,5...44,5
1000H: (41,5...46,5)
9th speed 1/min: 800
Charge press. hPa: -
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: 37,0...39,0
1000H: (35,5...40,5)
10th speed 1/min: 600
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: 40,0...41,0
1000H: (38,0...43,0)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 400
ELAB volt: -
Del. quantity cm³/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 400
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: 11,0...15,0
1000H.: (9,5...16,5)

Residual:

Speed 1/min: 500
Del. quantity : 6,5...9,5
1000H.: -
KSB-Solenoid-operated
valve Volt: 12,0

Automatic starting fuel delivery:

1st speed 1/min: 220
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: -
ind. 1000H: 57,0

2nd speed 1/min: 300
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: -
max. 1000H : 52,5

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation
K mm : 3,2...3,4
KF mm : 5,6...6,0
MS mm : 1,0...1,4

Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

* Correction at adjusting nut (46)

Adjustment of potentiometer at control lever

Prerequisite: pump set
Speed-control lever in idle position

Apply d.c. voltage 3.5...3.9 V to connection 1 (positive) and connection 3 (ground).

Turn potentiometer until a voltage of 3.07...3.13 V is indicated between connection 2 (positive) and connection 3 (ground).

If potentiometer is set correctly, the voltage must drop to 1.0...1.4 V in max. control lever position.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV 1,6 X13
Edition : 19.07.89
replaces : 10.05.89
Calibrating oil : ISO 4113

Injection pump : VE 4/ 9F2250 R328-2
Type number : 0 460 494 252

Customer-specific information
Customer : VW

Engine : 086 T-1,6L LLK

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : -
(from BDC) : -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1250
Charge press. hPa: 750
Setting value mm: 3,0...3,4

Supply-pump pressure:

Speed 1/min: 1250
Charge press. hPa: 750
Setting value bar: 4,9...5,5

Full-load del. with charge press.:

Speed 1/min: 1500
Charge press. hPa: 750
Del. quantity cm³/
1000H.: 42,0...43,0

Dispersion cm³/
1000H.: (3,0)

Full-load del. w/out charge press.:

Speed 1/min : 700
Del. quantity cm³/
1000H.: 26,5...27,5

Low-idle speed regulation:

Speed 1/min: 425
Charge press. hPa: -
Del. quantity cm³/
1000H.: 9,0...11,0

Dispersion cm³/
1000H.: (3,0)

Residual-Delivery Setting

Speed 1/min: 550
Charge press. hPa: -
Del. quantity cm³/
1000H.: 2,0...3,0

Full-load speed regulation:

Speed 1/min: 2525
Charge press. hPa: 750
Del. quantity cm³/
1000H.: 13,0...17,0

Start:

Speed 1/min: 100
Charge press. hPa: -
Del. quantity : -
mind cm³/1000H.: 35,0

Load-dependent start of delivery:

Speed 1/min: 1250
Charge press. hPa: -

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000
Charge press. hPa: 750
TD travel mm: 1,7...2,5
mm: (1,4...2,8)

2nd speed 1/min: 1250
Charge press. hPa: 750

TD travel mm: 3,0...3,4
 mm: (2,5...3,9)
 3rd speed 1/min: 2000
 Charge press. hPa: 750
 TD travel mm: 6,4...7,2
 mm: (6,1...7,5)
 4th speed 1/min: 2250
 Charge press. hPa: 750
 TD travel mm: 7,0...7,8
 mm: (6,7...8,1)

Supply-pump pressure characteristic:

1st speed 1/min: 700
 Charge press. hPa: 750
 Supply-pump pressure bar: 3,3...3,9
 2nd speed 1/min: 1250
 Charge press. hPa: 750
 Supply-pump pressure bar: 4,9...5,5
 3rd speed 1/min: 2250
 Charge press. hPa: 750
 Supply-pump pressure bar: 7,7...8,3

Overflow quantity at overflow valve:

1st speed 1/min: 700
 Charge press. hPa: -
 Overflow quantity cm³/10s: 41...83
 (26...98)
 2nd speed 1/min: 2250
 Charge press. hPa: 750
 Overflow quantity cm³/10s: 55...138
 (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 900*
 Charge-air pressure-setting point hPa: 300
 LDA stroke mm: 5,5
 Del. quantity cm³/1000H.: 33,0...34,0
 (30,5...36,5)
 2nd speed 1/min: 2650
 Charge press. hPa: 750
 Del. quantity cm³/1000H.: 0,0...6,0
 3rd speed 1/min: 2525
 Charge press. hPa: 750
 Del. quantity cm³/1000H.: 13,0...17,0
 (11,0...19,0)
 4th speed 1/min: 2425
 Charge press. hPa: 750
 Del. quantity cm³/1000H.: 26,5...36,5
 (25,5...37,5)
 5th speed 1/min: 2250
 Charge press. hPa: 750

Del. quantity cm³/1000H.: 36,3...38,3
 (35,1...39,5)
 6th speed 1/min: 1500
 Charge press. hPa: 750
 Del. quantity cm³/1000H.: 42,0...43,0
 (40,3...44,7)
 7th speed 1/min: 900
 Charge press. hPa: 300
 Del. quantity cm³/1000H.: 33,0...34,0
 (30,5...36,5)
 8th speed 1/min: 700
 Charge press. hPa: -
 Del. quantity cm³/1000H.: 26,5...27,5
 (24,0...30,0)
 9th speed 1/min: 700
 Charge press. hPa: 750
 Del. quantity cm³/1000H.: 34,0...37,0
 (32,5...38,5)
 10th speed 1/min: 600
 Charge press. hPa: -
 Del. quantity cm³/1000H.: 25,0...30,0
 (22,5...32,5)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 425
 ELAB volt: -
 Del. quantity cm³/1000H.: 0,0...3,0
 max. 1000H.: -

Idle delivery:

1st speed 1/min: 425
 Del. quantity cm³/1000H.: 9,0...11,0
 (4,5...15,5)

High Idle:

Speed 1/min: 525
 Del. quantity cm³/1000H.: 9,0...11,0
 (5,0...15,0)

Residual:

Speed 1/min: 500
 Del. quantity cm³/1000H.: 2,5...4,5
 (0,0...7,0)

Automatic starting fuel delivery:

1st speed 1/min: 150
 Del. quantity cm³/ind.: -
 1000H.: 35,0
 2nd speed 1/min: 350
 Del. quantity cm³/ind.: -
 max. 1000H.: 37,0

Shutoff electromagnet:

Cut-in

min. voltage : 10,0

Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K mm : K1

KF mm : 5,6...6,0

MS mm : 1,1...1,5

SVS max. mm : -

Remarks:

* Correction at adjusting nut (46)

Operate control lever after each manifold-pressure compensator pressure change.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA 1,7 P11
 Edition : 19.07.89
 replaces : -
 Calibrating oil : ISO 4113
 Injection pump : VE 4/ 9F2300 256-2
 Type number : 0 460 494 253
 Customer Part-No. :

Customer-specific information
 Customer : FIAT-AUTO

Engine : M705 LA 19.0

TEST BENCH REQUIREMENTS

Calibrating-oil
 return temp. °C
 with thermometer : 40...48
 electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
 assembly : 1 688 901 022

Opening
 pressure bar : 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6
 x Wall thickness : 2
 x Length mm : 450

Start of delivery
 Prestroke mm : -
 (from BDC) : -

Indicator setting:
 Piston stroke mm : 1.0
 Outlet : A

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500
 Setting value mm: 4,4...4,8

Supply-pump pressure:

C16

Speed 1/min: 1500
 Setting value bar: 5,2...5,9

Full-load del. w/out charge press.:

Speed 1/min : 1500
 Del. quantity cm³/
 1000H.: 29,5...30,5
 Dispersion cm³/: 2,5
 1000H.: -

Low-idle speed regulation:

Speed 1/min: 390
 Del. quantity cm³/
 1000H.: 10,0...14,0
 Dispersion cm³/: 2,5
 1000H.: (2,5)

Full-load speed regulation:

Speed 1/min: 2500
 Del. quantity cm³/
 1000H.: 18,5...24,5

Start:

Speed 1/min: 100
 Del. quantity : -
 mind cm³/1000H.: 55,0

Load-dependent start of delivery:

Speed 1/min: 1500

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 800
 TD travel mm: 1,1...1,9
 mm: (0,8...2,2)
 2nd speed 1/min: 1500
 TD travel mm: 4,4...4,8
 mm: (3,9...5,3)
 3rd speed 1/min: 2000
 TD travel mm: 6,6...7,4
 mm: (6,2...7,8)
 4th speed 1/min: 2300
 TD travel mm: 7,8...8,6
 mm: (7,5...8,9)

Supply-pump pressure characteristic:

1st speed 1/min: 600
 Supply-pump
 pressure bar: 3,1...3,7

2nd speed 1/min: 1500
Supply-pump pressure bar: 5,3...5,9
3rd speed 1/min: 2300
Supply-pump pressure bar: 7,1...7,7

Overflow quantity at overflow valve:

1st speed 1/min: 600
Overflow quantity : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 2300
Overflow quantity : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2900
Del. quantity cm³/1000H.: 0,0...6,0
2nd speed 1/min: 2650
Del. quantity cm³/1000H.: 4,5...11,5
3rd speed 1/min: 2500
Del. quantity cm³/1000H.: 18,5...24,5
4th speed 1/min: 2300
Del. quantity cm³/1000H.: 30,8...33,2
5th speed 1/min: 1500
Del. quantity cm³/1000H.: 29,5...30,5
6th speed 1/min: 1000
Del. quantity cm³/1000H.: 29,6...32,0
7th speed 1/min: 600
Del. quantity cm³/1000H.: 30,5...33,5

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 390
ELAB volt: -
Del. quantity cm³/1000H.: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 390
Del. quantity cm³/1000H.: 10,0...14,0
2nd speed 1/min: 440
Del. quantity cm³/1000H.: 0,0...6,0
3rd speed 1/min: 500

Del. quantity cm³/1000H.: 0,0...3,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 300
Del. quantity cm³/1000H.: -
ind. 1000H.: 48,0

2nd speed 1/min: 400
Del. quantity cm³/1000H.: -
max. 1000H.: 45,0

Shutoff electromagnet:

Cut-in min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation
K mm : 5,6...6,0
KF mm : 3,2...3,4
MS mm : 1,6...2,0

Remarks:

:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VMA 2,2 L
Edition : 17.07.89
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 4/10F1900 R356
Type number : O 460 404 062

Customer-specific information
Customer : VM

Engine : HR 492

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : -
(from BDC) : -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1600
Charge press. hPa: 800
Setting value mm: 5,1...5,5

Supply-pump pressure:

Speed 1/min: 1600
Charge press. hPa: 800
Setting value bar: 5,5...6,1

Full-load del. with charge press.:

Speed 1/min: 1600
Charge press. hPa: 800
Del. quantity cm³/
1000H.: 47,0...48,0
Dispersion cm³/
1000H.: 3,0

Full-load del. w/out charge press.:

Speed 1/min: 600
Del. quantity cm³/
1000H.: 33,0...34,0

Low-idle speed regulation:

Speed 1/min: 350
Charge press. hPa: -
Del. quantity cm³/
1000H.: 16,0...20,0
Dispersion cm³/
1000H.: 3,0

Full-load speed regulation:

Speed 1/min: 1030
Charge press. hPa: 800
Del. quantity cm³/
1000H.: 17,0...23,0

Start:

Speed 1/min: 100
Charge press. hPa: -
Del. quantity : -
mind cm³/1000H.: 65,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000
Charge press. hPa: 800
TD travel mm: 1,0...1,8
mm: (0,7...2,1)
2nd speed 1/min: 1600
Charge press. hPa: 800
TD travel mm: 5,1...5,5
mm: (4,6...6,0)
3rd speed 1/min: 1900
Charge press. hPa: 800
TD travel mm: 6,7...7,5
mm: (6,4...7,8)

Supply-pump pressure characteristic:

1st speed 1/min: 1000

Charge press. hPa: 800
 Supply-pump pressure bar: 3,5...4,1
 2nd speed 1/min: 1600
 Charge press. hPa: 800
 Supply-pump pressure bar: 5,5...6,1
 3rd speed 1/min: 1900
 Charge press. hPa: 800
 Supply-pump pressure bar: 6,5...7,1

Overflow quantity at overflow valve:

1st speed 1/min: 600
 Charge press. hPa: -
 Overflow quantity cm3/10s: (41...83)
 2nd speed 1/min: 1900
 Charge press. hPa: 800
 Overflow quantity cm3/10s: (55...138)

Delivery-quant. and breakaway char.:

1st speed 1/min: 750
 Charge-air pressure-setting point hPa: 300
 Del. quantity cm3/1000H.: (42,0...43,5)
 2nd speed 1/min: 2070
 Charge press. hPa: 800
 Del. quantity cm3/1000H.: (0,0...3,0)
 3rd speed 1/min: 2030
 Charge press. hPa: 800
 Del. quantity cm3/1000H.: (17,0...23,0)
 4th speed 1/min: 1900
 Charge press. hPa: 800
 Del. quantity cm3/1000H.: (44,9...47,9)
 5th speed 1/min: 1600
 Charge press. hPa: 800
 Del. quantity cm3/1000H.: (47,0...48,0)
 6th speed 1/min: 1600
 Charge press. hPa: -
 Del. quantity cm3/1000H.: (31,0...34,0)
 7th speed 1/min: 750
 Charge press. hPa: 300
 Del. quantity cm3/1000H.: (42,5...43,5)
 8th speed 1/min: 600
 Charge press. hPa: -
 Del. quantity cm3/1000H.: (33,0...34,0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1900
 Del. quantity cm3/1000H.: (0...3,0)

Electr. shutoff:

Speed 1/min: 400
 ELAB volt: 12,0
 Del. quantity cm3/1000H.: (0,0...3,0)

Idle delivery:

1st speed 1/min: 350
 Del. quantity cm3/1000H.: (16,0...20,0)
 2nd speed 1/min: 430
 Del. quantity cm3/1000H.: (0,0...6,0)

Automatic starting fuel delivery:

1st speed 1/min: 350
 Charge press. hPa: -
 Del. quantity cm3/1000H.: (ind. 45,0)
 2nd speed 1/min: 450
 Charge press. hPa: -
 Del. quantity cm3/1000H.: (max. 40,0)

Shutoff electromagnet:

Cut-in min. voltage : 10,0
 Rated voltage : 12,0

Mounting and assembly dimensions:

Designation
 K mm : 3,2...3,4
 KF mm : 5,6...6,0
 MS mm : 1,3...1,7
 SVS max. mm : 5,7

Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

* Correction at adjusting nut (46)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : S0F 2,5 P2
Edition : 17.07.89
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 4/10F2050 R361
Type number : 0 460 404 064

Customer-specific information
Customer : SOFIM

Engine : 8144.97.2280

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0,2
(from BDC) : ±0,02 (0,04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1000
Charge press. hPa: 1000
Setting value mm: 2,8...3,2

Supply-pump pressure:

Speed 1/min: 1000
Charge press. hPa: 1000
Setting value bar: 5,1...5,7

Full-load del. with charge press.:

Speed 1/min: 1200
Charge press. hPa: 1000
Del. quantity cm³/
1000H.: 65,0...66,0
Dispersion cm³/
1000H.: 3,0

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm³/
1000H.: 42,0...43,0

Low-idle speed regulation:

Speed 1/min: 425
Charge press. hPa: -
Del. quantity cm³/
1000H.: 9,0...13,0
Dispersion cm³/
1000H.: -

Residual-Delivery Setting

Speed 1/min: 500
Charge press. hPa: -
Del. quantity cm³/
1000H.: 3,0...7,0

Full-load speed regulation:

Speed 1/min: 2500
Charge press. hPa: 1000
Del. quantity cm³/
1000H.: 21,0...27,0

Start:

Speed 1/min: 100
Charge press. hPa: -
Del. quantity : -
mind cm³/1000H.: 70,0

Load-dependent start of delivery:

Speed 1/min: 1000
Charge press. hPa: 1000

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600
Charge press. hPa: 1000
TD travel mm: 0,9...1,7
mm: (0,6...2,0)
2nd speed 1/min: 1000
Charge press. hPa: 1000

TD travel mm: 2,8...3,2
 mm: (2,5...3,5)
 3rd speed 1/min: 2000
 Charge press. hPa: 1000
 TD travel mm: 7,4...8,2
 mm: (7,1...8,5)
 4th speed 1/min: 2200
 Charge press. hPa: 1000
 TD travel mm: 8,3...9,1
 mm: (8,0...9,4)

Supply-pump pressure characteristic:

1st speed 1/min: 600
 Charge press. hPa: 1000
 Supply-pump pressure bar: 4,1...4,7
 2nd speed 1/min: 1000
 Charge press. hPa: 1000
 Supply-pump pressure bar: 5,1...5,7
 3rd speed 1/min: 2000
 Charge press. hPa: 1000
 Supply-pump pressure bar: 7,3...7,9

Overflow quantity at overflow valve:

1st speed 1/min: 500
 Charge press. hPa: -
 Overflow : 41...83
 quantity cm³/10s: (26...98)
 2nd speed 1/min: 2300
 Charge press. hPa: 1000
 Overflow : 55...138
 quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 800
 Charge-air pressure-setting point hPa: 400
 Del. quantity cm³/: 55,5...56,5
 1000H.: (53,5...58,5)
 2nd speed 1/min: 2600
 Charge press. hPa: 1000
 Del. quantity cm³/: 1,0...6,0
 1000H.: -
 3rd speed 1/min: 2500
 Charge press. hPa: 1000
 Del. quantity cm³/: 21,0...27,0
 1000H.: (20,0...28,0)
 4th speed 1/min: 2300
 Charge press. hPa: 1000
 Del. quantity cm³/: 56,5...59,5
 1000H.: (55,8...60,2)
 5th speed 1/min: 1950
 Charge press. hPa: 1000
 Del. quantity cm³/: 63,0...66,0
 1000H.: -

6th speed 1/min: 1200
 Charge press. hPa: 1000
 Del. quantity cm³/: 64,7...65,7
 1000H.: (63,2...67,2)
 7th speed 1/min: 800
 Charge press. hPa: 400
 Del. quantity cm³/: 55,5...56,5
 1000H.: (53,5...58,5)
 8th speed 1/min: 800
 Charge press. hPa: 1000
 Del. quantity cm³/: 62,5...65,5
 1000H.: -
 9th speed 1/min: 500
 Charge press. hPa: -
 Del. quantity cm³/: 42,0...43,0
 1000H.: (43,5...48,5)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 425
 ELAB volt: 12,0
 Del. quantity cm³/: 0,0...3,0
 max. 1000H.: -

Idle delivery:

1st speed 1/min: 425
 Del. quantity cm³/: 9,0...13,0
 1000H.: (8,0...14,0)
 2nd speed 1/min: 475
 Del. quantity cm³/: 3,0...9,0
 1000H.: -

Residual:

Speed 1/min: 650
 Del. quantity : 1,0...4,0
 1000H.: -

Arrangement of drivers on engine-speed lever for exhaust-gas-recirculation valve linkage (guage)

1st speed 1/min: 1000
 Charge press. hPa: -
 Del. quantity cm³/: 42,0...44,0
 1000H.: (40,5...45,5)

Automatic starting fuel delivery:

1st speed 1/min: 200
 Charge press. hPa: -
 Del. quantity cm³/: -
 ind. 1000H.: 70,0
 2nd speed 1/min: 350
 Charge press. hPa: -

Del. quantity cm³/: -
max. 1000H : 41,5

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	: -
KF	mm	: 5,6...6,0
MS	mm	: 1,6...2,0
SVS max.	mm	: -

Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

* Correction at adjusting nut (46)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : S0F 2,5 P3
Edition : 17.07.89
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 4/10F2050 R364
Type number : 0 460 404 066

Customer-specific information
Customer : S0FIM

Engine : 8140.67.2580

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0,2
(from BDC): +0,02 (0,04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1000
Setting value mm: 4,0...4,4

Supply-pump pressure:

Speed 1/min: 1000
Setting value bar: 4,5...5,1

Full-load del. w/out charge press.:

Speed 1/min : 2000
Del.quantity cm3/
1000H.: 38,5...39,5
Dispersion cm3/: 3,0
1000H.: -

Low-idle speed regulation:

Speed 1/min: 375
Del.quantity cm3/
1000H.: 14,0...18,0
Dispersion cm3/: 3,0
1000H.: -

Full-load speed regulation:

Speed 1/min: 2200
Del.quantity cm3/
1000H.: 13,0...19,0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm3/1000H.: 70,0

Load-dependent start of delivery:

Speed 1/min: 1000

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600
TD travel mm: 1,9...2,7
mm: (1,6...3,0)
2nd speed 1/min: 1000
TD travel mm: 4,0...4,4
mm: (3,5...4,9)
3rd speed 1/min: 1800
TD travel mm: 8,0...8,8
mm: (7,7...9,1)
4th speed 1/min: 2000
TD travel mm: 8,6...9,4
mm: (8,3...9,7)

Supply-pump pressure characteristic:

1st speed 1/min: 600
Supply-pump
pressure bar: 3,5...4,1
2nd speed 1/min: 1000
Supply-pump
pressure bar: 4,5...5,1
3rd speed 1/min: 2000
Supply-pump
pressure bar: 7,0...7,6

Overflow quantity at overflow valve:

1st speed 1/min: 600
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 2000
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2330
Del. quantity cm³/: 0,0...3,0
1000H.: -
2nd speed 1/min: 2200
Del. quantity cm³/: 13,0...19,0
1000H.: (12,0...20,0)
3rd speed 1/min: 2150
Del. quantity cm³/: 23,5...30,5
1000H.: -
4th speed 1/min: 2000
Del. quantity cm³/: 38,5...39,5
1000H.: (37,0...41,0)
5th speed 1/min: 1000
Del. quantity cm³/: 43,0...46,0
1000H.: (41,5...47,5)
6th speed 1/min: 600
Del. quantity cm³/: 37,5...40,5
1000H.: (35,5...42,5)
7th speed 1/min: 500
Del. quantity cm³/: 36,2...39,8
1000H.: (34,5...41,5)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 375
ELAB volt: -
Del. quantity cm³/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
Del. quantity cm³/: 14,0...18,0
1000H.: (11,0...21,0)
2nd speed 1/min: 400
Del. quantity cm³/: 7,0...13,0
1000H.: (5,0...15,0)
3rd speed 1/min: 450
Del. quantity cm³/: 0,0...2,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 400

Del. quantity cm³/: -
ind. 1000H: 44,0

2nd speed 1/min: 500
Del. quantity cm³/: -
max. 1000H : 44,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation
K mm : -
KF mm : 5,6...6,0
MS mm : 1,6...2,0
SVS max. mm : 1,9

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VW 2,4 S10
Edition : 19.07.89
replaces : -
Calibrating oil : ISO 4113
Injection pump : VE 6/10F2150 L354
Type number : 0 460 406 063

Customer-specific information
Customer : VW

Engine : 087-LT

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
pressure bar : 147...150

Test inj. tubing : 1 680 750 000

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : -
(from BDC) : -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500
Setting value mm: 2,8...3,2

Supply-pump pressure:

Speed 1/min: 1500
Setting value bar: 6,0...6,6

Full-load del. w/out charge press.:

Speed 1/min: 1250
Del. quantity cm³/
1000H.: 28,5...29,5
Dispersion cm³/
1000H.: 2,5
1000H.: -

Low-idle speed regulation:

Speed 1/min: 375
Del. quantity cm³/
1000H.: 6,0...10,0
Dispersion cm³/
1000H.: (3,0)

Full-load speed regulation:

Speed 1/min: 2325
Del. quantity cm³/
1000H.: 10,0...14,0

Start:

Speed 1/min: 100
Del. quantity : -
mind cm³/1000H.: 35,0

Load-dependent start of delivery:

Speed 1/min: 1500

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000
TD travel mm: 0,5...1,3
mm: (0,2...1,6)
2nd speed 1/min: 1500
TD travel mm: 2,8...3,2
mm: (2,3...3,7)
3rd speed 1/min: 1700
TD travel mm: 3,6...4,4
mm: (3,3...4,7)
4th speed 1/min: 2150
TD travel mm: 3,7...4,5
mm: (3,4...4,8)

Supply-pump pressure characteristic:

1st speed 1/min: 750
Supply-pump
pressure bar: 4,0...4,6
2nd speed 1/min: 1500
Supply-pump
pressure bar: 6,0...6,6
3rd speed 1/min: 2150
Supply-pump
pressure bar: 7,7...8,3

Overflow quantity at overflow valve:

1st speed 1/min: 750
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 2150
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2500
Del. quantity cm³/: 0,0...6,0
1000H.: -
2nd speed 1/min: 2325
Del. quantity cm³/: 10,0...14,0
1000H.: (8,0...16,0)
3rd speed 1/min: 2275
Del. quantity cm³/: 12,5...22,5
1000H.: (11,5...23,5)
4th speed 1/min: 2150
Del. quantity cm³/: 22,0...24,0
1000H.: (20,8...25,2)
5th speed 1/min: 1250
Del. quantity cm³/: 28,5...29,5
1000H.: (26,8...31,2)
6th speed 1/min: 750
Del. quantity cm³/: 26,0...29,0
1000H.: (24,5...30,5)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 375
ELAB volt: -
Del. quantity cm³/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
Del. quantity cm³/: 6,0...10,0
1000H.: (4,0...12,0)
2nd speed 1/min: 500
Del. quantity cm³/: 0,0...4,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 300
Del. quantity cm³/: -
ind. 1000H: 35,0
2nd speed 1/min: 500
Del. quantity cm³/: -
max. 1000H : 35,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	: 3,2...3,4
KF	mm	: 6,3...6,7
MS	mm	: 1,3...1,7
SVS max.	mm	: 4,3

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PER
Edition : 10.07.89
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 4/11F2250 R327
Type number : 0 460 414 065

Customer-specific information
Customer : PERKINS

Engine : PRIMA N/A

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
pressure bar : 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6
x Wall thickness : 2
x Length mm : 450

Start of delivery
Prestroke mm : -
(from BDC): -

Start of delivery block
Piston stroke mm: 1,1
mm: -
Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1800
Setting value mm: 4,2...4,6
KSB solenoid-operated
valve volt: 12,0

Supply-pump pressure:

Speed 1/min: 1800
Setting value bar: 6,7...7,3
KSB solenoid-operated
valve volt: 12,0

Full-load del. w/out charge press.:

Speed 1/min : 450
Del. quantity cm³/
1000H.: 32,0...33,0
KSB solenoid-operated
valve volt: 12,0

Low-idle speed regulation:

Speed 1/min: 400
Del. quantity cm³/
1000H.: 7,0...9,0
KSB solenoid-operated
valve volt: 12,0

Full-load speed regulation:

Speed 1/min: 2500
Del. quantity cm³/
1000H.: 28,0...30,0
KSB solenoid-operated
valve volt: 12,0

Start:

Speed 1/min: 100
Del. quantity : -
mind cm³/1000H.: 70,0
KSB solenoid-operated
valve volt: 12,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500
TD travel mm: 1,7...1,9
mm: (1,0...2,6) *
KSB solenoid-operated
valve volt: -
2nd speed 1/min: 1200
TD travel mm: 1,4...3,4 *
mm: -
KSB solenoid-operated
valve volt: -
3rd speed 1/min: 1200
TD travel mm: 1,1...1,9
mm: (0,8...2,2)
KSB solenoid-operated
valve volt: 12,0

4th speed 1/min: 1500
TD travel mm: 2,5...3,3
mm: (2,2...3,6)

KSB solenoid-operated
valve volt: 12,0
5th speed 1/min: 1800
TD travel mm: 4,2...4,6
mm: (3,7...5,1)

KSB solenoid-operated
valve volt: 12,0
6th speed 1/min: 2250
TD travel mm: 6,4...7,2
mm: (6,1...7,5)

KSB solenoid-operated
valve volt: 12,0

Supply-pump pressure characteristic:

1st speed 1/min: 1000
Supply-pump pressure bar: 5,3...5,9

KSB solenoid-operated
valve volt: 12,0

2nd speed 1/min: 1000
Supply-pump pressure bar: 5,3...5,9

KSB solenoid-operated
valve volt: 12,0

3rd speed 1/min: 1800
Supply-pump pressure bar: 6,7...7,3

KSB solenoid-operated
valve volt: 12,0

4th speed 1/min: 2250
Supply-pump pressure bar: 7,5...8,1

KSB solenoid-operated
valve volt: 12,0

Overflow quantity at overflow valve:

1st speed 1/min: 450
KSB solenoid-operated
valve volt: 12,0
Overflow : 72...116
quantity cm³/10s: (57...131)

2nd speed 1/min: 2250
KSB solenoid-operated
valve volt: 12,0
Overflow : 55...111
quantity cm³/10s: (40...126)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2600
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: 0,0...15,0
1000H.: -
2nd speed 1/min: 2500

KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: 28,0...30,0
1000H.: (25,0...33,0)

3rd speed 1/min: 2250
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: 53,5...58,5
1000H.: (52,0...60,0)

4th speed 1/min: 1000
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: 47,5...48,5
1000H.: (45,0...51,0)

5th speed 1/min: 450
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: 32,0...33,0
1000H.: (28,5...36,5)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 400
ELAB volt: -
Del. quantity cm³/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 400
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: 7,0...9,0
1000H.: (4,0...12,0)
2nd speed 1/min: 500
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: 1,5...7,5
1000H.: (0,5...8,5)

Automatic starting fuel delivery:

1st speed 1/min: 100
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: -
ind. 1000H: 70,0

2nd speed 1/min: 400
KSB solenoid-operated
valve volt: 12,0
Del. quantity cm³/: -
max. 1000H : 50,0

Shutoff electromagnet:

Cut-in

min. voltage : 10,0

Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K mm : 3,2...3,4

KF mm : K-0T

MS mm : 1,1...1,5

XK mm : 20,0...22,0

XL mm : 10,5...13,9

Remarks:

* Unscrew KSB ball valve 2 mm

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VMA
Edition : 10.07.89
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 6/11F1800 L363
Type number : 0 460 416 064

Customer-specific information
Customer : VM

Engine : HR 694 HJ/10

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0,2
(from BDC) : +-0,02 (0,04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500
Charge press. hPa: 1000
Setting value mm: 3,8...4,2

Supply-pump pressure:

Speed 1/min: 1500
Charge press. hPa: 1000
Setting value bar: 6,1...6,7

Full-load del. with charge press.:

Speed 1/min: 1500
Charge press. hPa: 1000
Del. quantity cm³/
1000H.: 82,5...83,5
Dispersion cm³ / : 3,5
1000H : -

Full-load del. w/out charge press.:

Speed 1/min : 600
Del. quantity cm³/
1000H.: 69,0...70,0

Low-idle speed regulation:

Speed 1/min: 450
Charge press. hPa: -
Del. quantity cm³/
1000H.: 21,0...25,0
Dispersion cm³ / : 3,5
1000H.: -

Full-load speed regulation:

Speed 1/min: 2000
Charge press. hPa: 1000
Del. quantity cm³/
1000H: 52,0...58,0

Start:

Speed 1/min: 100
Charge press. hPa: -
Del. quantity : -
mind cm³/1000H.: 55,0

Load-dependent start of delivery:

Speed 1/min: 1500
Charge press. hPa: -

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000
Charge press. hPa: 1000
TD travel mm: 1,4...2,2
mm: (1,1...2,5)
2nd speed 1/min: 1500
Charge press. hPa: 1000
TD travel mm: 3,8...4,2
mm: (3,3...4,7)
3rd speed 1/min: 1800
Charge press. hPa: 1000

TD travel mm: 4,9...5,7
mm: (4,6...6,0)

Supply-pump pressure characteristic:

1st speed 1/min: 600
Charge press. hPa: 1000
Supply-pump pressure bar: 3,0...3,6
2nd speed 1/min: 1500
Charge press. hPa: 1000
Supply-pump pressure bar: 6,1...6,7
3rd speed 1/min: 1800
Charge press. hPa: 1000
Supply-pump pressure bar: 7,1...7,7

Overflow quantity at overflow valve:

1st speed 1/min: 600
Charge press. hPa: 1000
Overflow quantity cm³/10s: (41...83)
2nd speed 1/min: 1800
Charge press. hPa: 1000
Overflow quantity cm³/10s: (55...138)

Delivery-quant. and breakaway char.:

1st speed 1/min: 600*
Charge-air pressure-setting point hPa: 400
LDA stroke mm: 5,2
Del. quantity cm³/1000H.: (69,0...70,0)
2nd speed 1/min: 2130
Charge press. hPa: 1000
Del. quantity cm³/1000H.: (0,0...8,0)
3rd speed 1/min: 2000
Charge press. hPa: 1000
Del. quantity cm³/1000H.: (52,0...58,0)
4th speed 1/min: 1800
Charge press. hPa: 1000
Del. quantity cm³/1000H.: (76,0...79,0)
5th speed 1/min: 1500
Charge press. hPa: 1000
Del. quantity cm³/1000H.: (82,5...83,5)
6th speed 1/min: 600
Charge press. hPa: 1000
Del. quantity cm³/1000H.: (84,0...88,0)
7th speed 1/min: 600
Charge press. hPa: 400

Del. quantity cm³/1000H.: (69,0...70,0)
8th speed 1/min: 600
Charge press. hPa: -
Del. quantity cm³/1000H.: (49,0...50,0)

Zero delivery (stop):

Mech. shutoff:
Speed 1/min: 1800
Del. quantity cm³/1000H.: (0,0...3,0)

Electr. shutoff:

Speed 1/min: 450
ELAB volt: 12,0
Del. quantity cm³/1000H.: (0,0...3,0)
max. 1000H.: -

Idle delivery:

1st speed 1/min: 450
Del. quantity cm³/1000H.: (21,0...25,0)
2nd speed 1/min: 500
Del. quantity cm³/1000H.: (16,5...21,5)
3rd speed 1/min: 600
Del. quantity cm³/1000H.: (1,0...7,0)

Automatic starting fuel delivery:

1st speed 1/min: 300
Charge press. hPa: -
Del. quantity cm³/ind. 1000H.: (66,0)
2nd speed 1/min: 400
Charge press. hPa: -
Del. quantity cm³/max. 1000H.: (55,0)

Shutoff electromagnet:

Cut-in min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K mm : -
KF mm : 5,6...6,0
MS mm : 0,8...1,2
xK mm : 20,0...22,0
XL mm : 9,7...13,1

Pushing electromagnet.

Operate control lever after each manifold-pressure compensator pressure change.

* Correction at adjusting nut (46)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VOL 4,1 H1
Edition : 18.07.89
replaces : -
Calibrating oil : ISO 4113
Injection pump : VE 6/11F1900 L218-8
Type number : 0 460 416 065

Customer-specific information
Customer : PENTA

Engine : TAMD 41B

Power k: 132
Speed 1/mi: -

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
pressure bar : 130...133

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 450

Start of delivery
Prestroke mm : 0,3
(from BDC): +0,02 (0,04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1200
Charge press. hPa: 1000
Setting value mm: 2,0...2,4

Supply-pump pressure:

Speed 1/min: 1200

D05

Charge press. hPa: 1000
Setting value bar: 5,9...6,5

Full-load del. with charge press.:

Speed 1/min: 1500
Charge press. hPa: 1000
Del. quantity cm³/
1000H.: 88,0...89,0
Dispersion cm³ / : 5,0
1000H.: -

Full-load del. w/out charge press.:

Speed 1/min : 650
Del. quantity cm³/
1000H.: 58,5...59,5

Low-idle speed regulation:

Speed 1/min: 325
Charge press. hPa: -
Del. quantity cm³/
1000H.: 25,0...29,0

Full-load speed regulation:

Speed 1/min: 2050
Charge press. hPa: 1000
Del. quantity cm³/
1000H.: 67,0...73,0

Start:

Speed 1/min: 100
Del. quantity : -
mind cm³/1000H.: 80,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000
Charge press. hPa: 1000
TD travel mm: 0,6...1,6
mm: (0,4...1,8)

2nd speed 1/min: 1200
Charge press. hPa: 1000
TD travel mm: 2,0...2,4
mm: (1,5...2,9)

3rd speed 1/min: 1700
Charge press. hPa: 1000
TD travel mm: 3,5...4,3
mm: (3,2...4,6)

4th speed 1/min: 1900
Charge press. hPa: 1000
TD travel mm: 3,7...4,5
mm: -

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
Supply-pump pressure bar: 4,2...4,8
2nd speed 1/min: 1000
Charge press. hPa: 1000
Supply-pump pressure bar: 5,5...6,1
3rd speed 1/min: 1200
Charge press. hPa: 1000
Supply-pump pressure bar: 5,9...6,5
4th speed 1/min: 1900
Charge press. hPa: 1000
Supply-pump pressure bar: 7,4...8,0

Overflow quantity at overflow valve:

1st speed 1/min: 650
Charge press. hPa: 1000
Overflow quantity cm³/10s: (41...83)
2nd speed 1/min: 1900
Charge press. hPa: 1000
Overflow quantity cm³/10s: (55...138)

Delivery-quant. and breakaway char.:

1st speed 1/min: 800*
Charge-air pressure-setting point hPa: 200
LDA stroke mm: 4,5
Del. quantity cm³/: 72,5...73,5
1000H.: (70,0...76,0)
2nd speed 1/min: 2200
Charge press. hPa: 1000
Del. quantity cm³/: 0,0...4,0
1000H.: -
3rd speed 1/min: 2150
Charge press. hPa: 1000
Del. quantity cm³/: 4,5...11,5
1000H.: -
4th speed 1/min: 2050
Charge press. hPa: 1000
Del. quantity cm³/: 67,0...73,0
1000H.: (64,0...76,0)
5th speed 1/min: 1900
Charge press. hPa: 1000
Del. quantity cm³/: 79,0...83,0
1000H.: (77,0...85,0)
6th speed 1/min: 1500
Charge press. hPa: 1000
Del. quantity cm³/: 88,0...89,0
1000H.: (86,2...90,8)
7th speed 1/min: 1200

Charge press. hPa: 1000
Del. quantity cm³/: 92,0...95,0
1000H.: (90,5...96,5)
8th speed 1/min: 800
Charge press. hPa: 200
Del. quantity cm³/: 72,5...73,5
1000H.: (70,0...76,0)
9th speed 1/min: 800
Charge press. hPa: 1000
Del. quantity cm³/: 78,5...81,5
1000H.: (77,0...83,0)
10th speed 1/min: 650
Charge press. hPa: -
Del. quantity cm³/: 58,5...59,5
1000H.: (56,0...62,0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1900
Del. quantity cm³/: 0..3
1000H.: -

Electr. shutoff:

Speed 1/min: 325
ELAB volt: -
Del. quantity cm³/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 325
Del. quantity cm³/: 25,0...29,0
1000H.: (22,0...32,0)
2nd speed 1/min: 400
Del. quantity cm³/: 5,0...11,0
1000H.: (3,5...12,5)
3rd speed 1/min: 480
Del. quantity cm³/: 0,0...3,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 300
Del. quantity cm³/: -
ind. 1000H: 70,0
2nd speed 1/min: 500
Del. quantity cm³/: -
max. 1000H : 70,0

Shutoff electromagnet:

Cut-in min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	: -
KF	mm	: K-0T
MS	mm	: 0,6...1,0
XK	mm	: 21,8...23,8
XL	mm	: 11,2...14,6

Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

* Correction at adjusting nut (46)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 3,9 E6
Edition : 13.07.89
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 4/12F1250 R226-2
Type number : 0 460 424 024
Customer Part-No. : 3 908 192

Customer-specific information
Customer : CDC

Engine : 4 BT 390 IND

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
pressure bar : 250...253

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0,3
(from BDC) : +-0,02 (0,04)

Start of delivery block
Piston stroke mm : 1,8
mm : +-0,02 (0,06)

Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 900

D08

Setting value mm: 2,0...2,4

Supply-pump pressure:

Speed 1/min: 900
Setting value bar: 4,6...5,2

Full-load del. w/out charge press.:

Speed 1/min : 1100
Del. quantity cm3/
1000H.: 68,5...69,5
Dispersion cm3/: 4,0
1000H.: (4,5)

Low-idle speed regulation:

Speed 1/min: 335
Del. quantity cm3/
1000H.: 8,0...14,0
Dispersion cm3/: 5,5
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1290
Del. quantity cm3/
1000H.: 58,0...64,0

Start:

Speed 1/min: 100
Del. quantity : -
mind cm3/1000H.: 70,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 750
TD travel mm: 0,8...1,6
mm: (0,5...1,9)
2nd speed 1/min: 900
TD travel mm: 2,0...2,4
mm: (1,5...2,9)
3rd speed 1/min: 1100
TD travel mm: 2,9...3,7
mm: (2,6...4,0)

Supply-pump pressure characteristic:

1st speed 1/min: 500
Supply-pump
pressure bar: 2,7...3,3
2nd speed 1/min: 750
Supply-pump
pressure bar: 3,9...4,5
3rd speed 1/min: 900

Supply-pump
pressure bar: 4,6...5,2
4th speed 1/min: 1100
Supply-pump
pressure bar: 5,4...6,0

Overflow quantity at overflow valve:

1st speed 1/min: 500
Overflow : 41...83
quantity cm3/10s: (26...98)
2nd speed 1/min: 1250
Overflow : 55...138
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1450
Del. quantity cm3/: 0,0...3,0
1000H.: -
2nd speed 1/min: 1400
Del. quantity cm3/: 0,0...15,0
1000H.: -
3rd speed 1/min: 1360
Del. quantity cm3/: 15,0...55,0
1000H.: -
4th speed 1/min: 1290
Del. quantity cm3/: 58,0...64,0
1000H.: (55,0...67,0)
5th speed 1/min: 1250
Del. quantity cm3/: 66,5...69,5
1000H.: (65,0...71,0)
6th speed 1/min: 1100
Del. quantity cm3/: 68,5...69,5
1000H.: (66,0...72,0)
7th speed 1/min: 750
Del. quantity cm3/: 73,0...77,0
1000H.: (71,0...79,0)
8th speed 1/min: 500
Del. quantity cm3/: 74,0...82,0
1000H.: (72,0...84,0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1250
Del. quantity cm3/: 0..3
1000H.: -

Electr. shutoff:

Speed 1/min: 335
ELAB volt: -
Del. quantity cm3/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 335

Del. quantity cm3/: 8,0...14,0
1000H.: (6,0...16,0)
2nd speed 1/min: 500
Del. quantity cm3/: 0,0...4,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130
Del. quantity cm3/: -
ind. 1000H.: 75,0

2nd speed 1/min: 300
Del. quantity cm3/: -
max. 1000H.: 80,0

Shutoff electromagnet:

Cut-in
min. voltage : 20,0
Rated voltage : 24,0

Mounting and assembly dimensions:

Designation

K	mm	: -
KF	mm	: 5,0...5,4
MS	mm	: 0,8...1,2
SVS max.	mm	: 4,8
XK	mm	: 18,8...20,8
XL	mm	: 11,5...14,9

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CAS 3,9 L1
Edition : 12.07.89
replaces : -
Calibrating oil : ISO 4113
Injection pump : VE 4/12F1100 R 226-7
Type number : 0 460 424 046

Customer-specific information
Customer : CASE

Engine : 4 BT-390 580K

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
pressure bar : 250...253

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0,3
(from BDC): $\pm 0,02$ (0,04)

Start of delivery block
Piston stroke mm : 1,8
mm: $\pm 0,02$ (0,06)

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 900
Setting value mm: 2,3...2,7

Supply-pump pressure:

Speed 1/min: 900
Setting value bar: 4,1...4,7

Full-load del. w/out charge press.:

Speed 1/min : 750
Del. quantity cm³/
1000H.: 63,5...64,5
Dispersion cm³/: 4,0
1000H.: (4,5)

Low-idle speed regulation:

Speed 1/min: 475
Del. quantity cm³/
1000H.: 6,0...12,0
Dispersion cm³/: 5,5
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1150
Del. quantity cm³/
1000H.: 42,0...48,0

Start.

Speed 1/min: 100
Del. quantity : -
mind cm³/1000H.: 70,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 650
TD travel mm: 0,7...1,5
mm: (0,4...1,8)
2nd speed 1/min: 900
TD travel mm: 2,3...2,7
mm: (1,8...3,2)
3rd speed 1/min: 1100
TD travel mm: 3,1...3,9
mm: (2,8...4,2)

Supply-pump pressure characteristic:

1st speed 1/min: 500
Supply-pump
pressure bar: 2,4...3,0
2nd speed 1/min: 900
Supply-pump
pressure bar: 4,1...4,7
3rd speed 1/min: 1100

Supply-pump
pressure bar: 4,9...5,5

Overflow quantity at overflow valve:

1st speed 1/min: 500
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 1100
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1250
Del. quantity cm³/: 0,0...3,0
1000H.: -
2nd speed 1/min: 1220
Del. quantity cm³/: 0,0...15,0
1000H.: -
3rd speed 1/min: 1180
Del. quantity cm³/: 15,0...55,0
1000H.: -
4th speed 1/min: 1150
Del. quantity cm³/: 42,0...48,0
1000H.: (39,0...51,0)
5th speed 1/min: 1100
Del. quantity cm³/: 61,5...62,5
1000H.: (59,0...65,0)
6th speed 1/min: 900
Del. quantity cm³/: 60,8...63,8
1000H.: (58,8...65,8)
7th speed 1/min: 750
Del. quantity cm³/: 63,5...64,5
1000H.: (61,0...67,0)
8th speed 1/min: 500
Del. quantity cm³/: 61,0...69,0
1000H.: (59,0...71,0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1100
Del. quantity cm³/: 0..3
1000H.: -

Electr. shutoff:

Speed 1/min: 475
ELAB volt: -
Del. quantity cm³/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 475
Del. quantity cm³/: 6,0...12,0
1000H.: (4,0...14,0)
2nd speed 1/min: 550

Del. quantity cm³/: 0,0...4,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130
Del. quantity cm³/: -
ind. 1000H.: 70,0

2nd speed 1/min: 240
Del. quantity cm³/: -
max. 1000H.: 70,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation
K mm : -
KF mm : 5,0...5,4
MS mm : 1,1...1,5
SVS max. mm : 3,2

Remarks:

: CASE # 391 4487

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 3,9 P
Edition : 10.07.89
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 4/12F1250 R359-1
Type number : O 460 424 055

Customer-specific information
Customer : CDC

Engine : 4 BT

Power k: 79
Speed 1/mi: 2500

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
pressure bar : 250...253

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 A
Edition : 13.07.89
replaces : 07.84
Calibrating oil : ISO 4113
Injection pump : VE 6/12F1100 R159-2
Type number : 0 460 426 042

Customer-specific information
Customer : CDC

Engine : 6 BT

Power k: 106
Speed 1/mi: -

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 016

Opening
pressure bar : 207...210

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0,3
(from BDC) : +0,02 (0,04)

Start of delivery block
Piston stroke mm : 1,5
mm : +0,02 (0,06)

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 750
Setting value mm: 3,1...3,5

Supply-pump pressure:

Speed 1/min: 750
Setting value bar: 3,6...4,2

Full-load del. w/out charge press.:

Speed 1/min : 900
Del. quantity cm³/
1000H.: 82,0...83,0
Dispersion cm³/: 4,0
1000H.: (4,5)

Low-idle speed regulation:

Speed 1/min: 375
Del. quantity cm³/
1000H.: 22,0...28,0
Dispersion cm³/: 5,5
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1220
Del. quantity cm³/
1000H.: 34,0...40,0

Start:

Speed 1/min: 100
Del. quantity : -
mind cm³/1000H.: 100,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500
TD travel mm: 1,2...2,0
mm: (0,9...2,3)
2nd speed 1/min: 750
TD travel mm: 3,1...3,5
mm: (2,6...4,0)
3rd speed 1/min: 1100
TD travel mm: 5,1...5,9
mm: (4,8...6,2)

Supply-pump pressure characteristic:

1st speed 1/min: 500
Supply-pump
pressure bar: 2,6...3,2
2nd speed 1/min: 750

Supply-pump pressure bar: 3,6...4,2
3rd speed 1/min: 1100
Supply-pump pressure bar: 5,0...5,6

Overflow quantity at overflow valve:

1st speed 1/min: 500
Overflow quantity cm³/10s: 41...83
2nd speed 1/min: 1100
Overflow quantity cm³/10s: 55...138

Delivery-quant. and breakaway char.:

1st speed 1/min: 1280
Del. quantity cm³/1000H.: 0,0...3,0
2nd speed 1/min: 1220
Del. quantity cm³/1000H.: 34,0...40,0
3rd speed 1/min: 1100
Del. quantity cm³/1000H.: 75,0...78,0
4th speed 1/min: 900
Del. quantity cm³/1000H.: 82,0...83,0
5th speed 1/min: 500
Del. quantity cm³/1000H.: 77,0...85,0

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1100
Del. quantity cm³/1000H.: 0..3

Electr. shutoff:

Speed 1/min: 375
ELAB volt: -
Del. quantity cm³/1000H.: 0,0...3,0

Idle delivery:

1st speed 1/min: 375
Del. quantity cm³/1000H.: 22,0..28,0
2nd speed 1/min: 450
Del. quantity cm³/1000H.: 0,0...3,0

Automatic starting fuel delivery:

1st speed 1/min: 130

Del. quantity cm³/1000H.: -
ind. 1000H.: 100,0

2nd speed 1/min: 200
Del. quantity cm³/1000H.: -
max. 1000H.: 85,0

Shutoff electromagnet:

Cut-in min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	:	-
KF	mm	:	5,0...5,4
MS	mm	:	1,3...1,7
SVS max.	mm	:	1,5
XK	mm	:	20,2...22,2
XL	mm	:	10,7...14,1

Remarks:

: C.D.C. # 390 3366

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 A1
Edition : 13.07.89
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 6/12F1100 R159-2
Type number : 0 460 426 042
Customer Part-No. : 3 917 664

Customer-specific information
Customer : CDC

Engine : 6 BT

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 016

Opening
pressure bar : 207...210

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0,3
(from BDC) : +0,02 (0,04)

Start of delivery block
Piston stroke mm : 1,5
mm : +0,02 (0,06)

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 750

D15

Setting value mm: 3,1...3,5

Supply-pump pressure:

Speed 1/min: 750
Setting value bar: 3,6...4,2

Full-load del. w/out charge press.:

Speed 1/min : 900
Del. quantity cm³/
1000H.: 82,0...83,0
Dispersion cm³/
1000H.: (4,5)

Low-idle speed regulation:

Speed 1/min: 375
Del. quantity cm³/
1000H.: 22,0...28,0
Dispersion cm³/
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1220
Del. quantity cm³/
1000H.: 34,0...40,0

Start:

Speed 1/min: 100
Del. quantity : -
mind cm³/1000H.: 100,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500
TD travel mm: 1,2...2,0
mm: (0,9...2,3)
2nd speed 1/min: 750
TD travel mm: 3,1...3,5
mm: (2,6...4,0)
3rd speed 1/min: 1100
TD travel mm: 5,1...5,9
mm: (4,8...6,2)

Supply-pump pressure characteristic:

1st speed 1/min: 500
Supply-pump
pressure bar: 2,6...3,2
2nd speed 1/min: 750
Supply-pump
pressure bar: 3,6...4,2
3rd speed 1/min: 1100

Supply-pump
pressure bar: 5,0...5,6

Overflow quantity at overflow valve:

1st speed 1/min: 500
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 1100
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1280
Del. quantity cm³/: 0,0...3,0
1000H.: -
2nd speed 1/min: 1220
Del. quantity cm³/: 34,0...40,0
1000H.: (31,0...43,0)
3rd speed 1/min: 1100
Del. quantity cm³/: 75,0...78,0
1000H.: (73,5...79,5)
4th speed 1/min: 900
Del. quantity cm³/: 82,0...83,0
1000H.: (79,5...85,5)
5th speed 1/min: 500
Del. quantity cm³/: 77,0...85,0
1000H.: (75,0...87,0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1100
Del. quantity cm³/: 0..3
1000H.: -

Electr. shutoff:

Speed 1/min: 375
ELAB volt: -
Del. quantity cm³/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
Del. quantity cm³/: 22,0..28,0
1000H.: (20,0..30,0)
2nd speed 1/min: 450
Del. quantity cm³/: 0,0...3,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130
Del. quantity cm³/: -
ind. 1000H: 100,0

2nd speed 1/min: 200
Del. quantity cm³/: -
max. 1000H : 85,0

Shutoff electromagnet:

Cut-in
min. voltage : 20,0
Rated voltage : 24,0

Mounting and assembly dimensions:

Designation

K	mm	: -
KF	mm	: 5,0...5,4
MS	mm	: 1,3...1,7
SVS max.	mm	: 1,5
XK	mm	: 20,2...22,2
XL	mm	: 10,7...14,1

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 B1
Edition : 13.07.89
replaces : -
Calibrating oil : ISO 4113
Injection pump : VE 6/12F1150 R159-3
Type number : D 460 426 043
Customer Part-No. : 3 917 663

Customer-specific information
Customer : CDC

Engine : 6 BT

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 016

Opening
pressure bar : 207...210

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0,3
(from BDC) : +0,02 (0,04)

Start of delivery block
Piston stroke mm : 1,5
mm : +0,02 (0,06)

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 900

Setting value mm: 4,3...4,7

Supply-pump pressure:

Speed 1/min: 900
Setting value bar: 4,4...5,0

Full-load del. w/out charge press.:

Speed 1/min : 900
Del. quantity cm³/
1000H.: 81,5...82,5
Dispersion cm³/: 4,0
1000H.: (4,5)

Low-idle speed regulation:

Speed 1/min: 375
Del. quantity cm³/
1000H.: 18,5...24,5
Dispersion cm³/: 5,5
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1230
Del. quantity cm³/
1000H.: 30,0...36,0

Start:

Speed 1/min: 100
Del. quantity : -
mind cm³/1000H.: 100,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500
TD travel mm: 1,2...2,0
mm: (0,9...2,3)
2nd speed 1/min: 900
TD travel mm: 4,3...4,7
mm: (3,8...5,2)
3rd speed 1/min: 1150
TD travel mm: 5,6...6,4
mm: (5,3...6,7)

Supply-pump pressure characteristic:

1st speed 1/min: 500
Supply-pump
pressure bar: 2,7...3,3
2nd speed 1/min: 900
Supply-pump
pressure bar: 4,3...5,0
3rd speed 1/min: 1150

Supply-pump
pressure bar: 5,4...6,0

Overflow quantity at overflow valve:

1st speed 1/min: 500
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 1150
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1290
Del. quantity cm³/: 0,0...3,0
1000H.: -
2nd speed 1/min: 1230
Del. quantity cm³/: 30,0...36,0
1000H.: (27,0...39,0)
3rd speed 1/min: 1150
Del. quantity cm³/: 74,0...77,0
1000H.: (72,5...78,5)
4th speed 1/min: 900
Del. quantity cm³/: 81,5...82,5
1000H.: (79,0...85,0)
5th speed 1/min: 500
Del. quantity cm³/: 78,5...86,5
1000H.: (76,5...88,5)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1250
Del. quantity cm³/: 0..3
1000H.: -

Electr. shutoff:

Speed 1/min: 360
ELAB volt: -
Del. quantity cm³/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
Del. quantity cm³/: 18,5...24,5
1000H.: (16,5...26,5)
2nd speed 1/min: 450
Del. quantity cm³/: 0,0...3,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130
Del. quantity cm³/: -
ind. 1000H.: 100,0

2nd speed 1/min: 200
Del. quantity cm³/: -
max. 1000H.: 80,0

Shutoff electromagnet:

Cut-in
min. voltage : 20,0
Rated voltage : 24,0

Mounting and assembly dimensions:

Designation

K	mm	: -
KF	mm	: 5,0...5,4
MS	mm	: 1,3...1,7
SVS max.	mm	: 1,5

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 D3
Edition : 13.07.89
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 6/12F1050 R159-4
Type number : 0 460 426 044
Customer Part-No. : 3 917 665

Customer-specific information
Customer : CDC

Engine : 6 BT

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 016

Opening
pressure bar : 207...210

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0,3
(from BDC) : +0,02 (0,04)

Start of delivery block
Piston stroke mm : 1,5
mm : +0,02 (0,04)

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 750

Setting value mm: 3,6...4,0

Supply-pump pressure:

Speed 1/min: 750
Setting value bar: 4,2...4,8

Full-load del. w/out charge press.:

Speed 1/min : 900
Del. quantity cm³/
1000H.: 83,0...84,0
Dispersion cm³/
1000H.: (4,5)

Low-idle speed regulation:

Speed 1/min: 375
Del. quantity cm³/
1000H.: 22,0...28,0

Full-load speed regulation:

Speed 1/min: 1125
Del. quantity cm³/
1000H.: 37,0...43,0

Start:

Speed 1/min: 100
Del. quantity : -
mind cm³/1000H.: 100,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500
TD travel mm: 1,8...2,6
mm: (1,5...2,9)
2nd speed 1/min: 750
TD travel mm: 3,6...4,0
mm: (3,1...4,5)
3rd speed 1/min: 900
TD travel mm: 4,6...5,4
mm: (4,3...5,7)

Supply-pump pressure characteristic:

1st speed 1/min: 500
Supply-pump
pressure bar: 3,0...3,6
2nd speed 1/min: 750
Supply-pump
pressure bar: 4,2...4,8
3rd speed 1/min: 900
Supply-pump
pressure bar: 4,7...5,3

Overflow quantity at overflow valve:

1st speed 1/min: 500
Overflow quantity cm³/10s: 41...83
2nd speed 1/min: 1050
Overflow quantity cm³/10s: 55...138

Delivery-quant. and breakaway char.:

1st speed 1/min: 1175
Del. quantity cm³: 0,0...3,0
1000H.: -
2nd speed 1/min: 1125
Del. quantity cm³: 37,0...43,0
1000H.: (34,0...46,0)
3rd speed 1/min: 1050
Del. quantity cm³: 78,5...81,5
1000H.: (77,0...83,0)
4th speed 1/min: 900
Del. quantity cm³: 83,0...84,0
1000H.: (80,5...86,5)
5th speed 1/min: 500
Del. quantity cm³: 82,0...90,0
1000H.: (80,0...92,0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1050
Del. quantity cm³: 0..3
1000H.: -

Electr. shutoff:

Speed 1/min: 375
ELAB volt: -
Del. quantity cm³: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
Del. quantity cm³: 22,0..28,0
1000H.: (20,0..30,0)
2nd speed 1/min: 450
Del. quantity cm³: 0,0...4,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130
Del. quantity cm³: -
ind. 1000H: 100,0

2nd speed 1/min: 200

Del. quantity cm³: -
max. 1000H : 85,0

Shutoff electromagnet:

Cut-in
min. voltage : 20,0
Rated voltage : 24,0

Mounting and assembly dimensions:

Designation

K	mm	: -
KF	mm	: 5,0...5,4
MS	mm	: 1,3...1,7

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 P2
Edition : 14.07.89
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 6/12F1250 R159-16
Type number : 0 460 426 066
Customer Part-No. : 3 908 214

Customer-specific information
Customer : CDC

Engine : 6 BT 5.9 IND

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
pressure bar : 250...253

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0,3
(from BDC) : +-0,02 (0,04)

Start of delivery block
Piston stroke mm : 1,5
mm : +-0,02 (0,06)

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 750

Setting value mm: 3,4...3,8

Supply-pump pressure:

Speed 1/min: 750
Setting value bar: 3,5...4,1

Full-load del. w/out charge press.:

Speed 1/min : 1100
Del. quantity cm³/
1000H.: 73,0...74,0
Dispersion cm³/
1000H.: (4,5)

Low-idle speed regulation:

Speed 1/min: 360
Del. quantity cm³/
1000H.: 8,0...14,0
Dispersion cm³/
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1300
Del. quantity cm³/
1000H.: 51,0...57,0

Start:

Speed 1/min: 100
Del. quantity : -
mind cm³/1000H.: 60,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500
TD travel mm: 1,5...2,3
mm: (1,2...2,6)
2nd speed 1/min: 750
TD travel mm: 3,4...3,8
mm: (2,9...4,3)
3rd speed 1/min: 1100
TD travel mm: 5,2...6,0
mm: (4,9...6,3)

Supply-pump pressure characteristic:

1st speed 1/min: 500
Supply-pump
pressure bar: 2,4...3,0
2nd speed 1/min: 750
Supply-pump
pressure bar: 3,5...4,1
3rd speed 1/min: 1100

Supply-pump
pressure bar: 4,8...5,4

Overflow quantity at overflow valve:

1st speed 1/min: 500
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 1250
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1400
Del. quantity cm³/: 0,0...3,0
1000H.: -
2nd speed 1/min: 1390
Del. quantity cm³/: 0,0...15,0
1000H.: -
3rd speed 1/min: 1350
Del. quantity cm³/: 15,0...55,0
1000H.: -
4th speed 1/min: 1300
Del. quantity cm³/: 51,0...57,0
1000H.: (48,0...60,0)
5th speed 1/min: 1250
Del. quantity cm³/: 70,0...73,0
1000H.: (68,5...74,5)
6th speed 1/min: 1100
Del. quantity cm³/: 73,0...74,0
1000H.: (70,5...76,5)
7th speed 1/min: 900
Del. quantity cm³/: 74,5...78,5
1000H.: -
8th speed 1/min: 750
Del. quantity cm³/: 76,0...80,0
1000H.: (74,0...82,0)
9th speed 1/min: 500
Del. quantity cm³/: 64,0...72,0
1000H.: (62,0...74,0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1250
Del. quantity cm³/: 0..3
1000H.: -

Electr. shutoff:

Speed 1/min: 360
ELAB volt: -
Del. quantity cm³/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 360

Del. quantity cm³/: 8,0...14,0
1000H.: (6,0...16,0)
2nd speed 1/min: 450
Del. quantity cm³/: 0,0...4,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130
Del. quantity cm³/: -
ind. 1000H.: 70,0

2nd speed 1/min: 240
Del. quantity cm³/: -
max. 1000H.: 70,0

Shutoff electromagnet:

Cut-in
min. voltage : 20,0
Rated voltage : 24,0

Mounting and assembly dimensions:

Designation

K	mm	: -
KF	mm	: 5,0...5,4
MS	mm	: 0,6...1,0
SVS max.	mm	: 1,5
XK	mm	: 18,8...20,8
XL	mm	: 11,1...14,5

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 T4
Edition : 11.07.89
replaces : 11.86
Calibrating oil : ISO 4113

Injection pump : VE 6/12F1100 R225-9
Type number : 0 460 426 075

Customer-specific information
Customer : CDC

Engine : 6 BT-5.9 CA

Power k: 93
Speed 1/mi: 2200

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
pressure bar : 250...253

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0,3
(from BDC): $\pm 0,02$ (0,04)

Start of delivery block
Piston stroke mm : 1,5
mm : $\pm 0,02$ (0,06)

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 750
Setting value mm: 3,4...3,8

Supply-pump pressure:

Speed 1/min: 750
Setting value bar: 3,5...4,1

Full-load del. w/out charge press.:

Speed 1/min : 750
Del. quantity cm³/
1000H.: 62,0...63,0
Dispersion cm³/
1000H.: (4,5)

Low-idle speed regulation:

Speed 1/min: 375
Del. quantity cm³/
1000H.: 10,0...12,0
Dispersion cm³/
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1150
Del. quantity cm³/
1000H.: 39,0...45,0

Start:

Speed 1/min: 100
Del. quantity : -
mind cm³/1000H.: 70,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500
TD travel mm: 1,5...2,3
mm: (1,2...2,6)
2nd speed 1/min: 750
TD travel mm: 3,4...3,8
mm: (2,9...4,3)
3rd speed 1/min: 1100
TD travel mm: 5,2...6,0
mm: (4,9...6,3)

Supply-pump pressure characteristic:

1st speed 1/min: 500
Supply-pump
pressure bar: 2,4...3,0
2nd speed 1/min: 750

Supply-pump
pressure bar: 3,5...4,1
3rd speed 1/min: 1100
Supply-pump
pressure bar: 4,8...5,4

Overflow quantity at overflow valve:

1st speed 1/min: 500
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 1100
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1250
Del. quantity cm³/: 0,0...3,0
1000H.: -
2nd speed 1/min: 1200
Del. quantity cm³/: 0,0...15,0
1000H.: -
3rd speed 1/min: 1170
Del. quantity cm³/: 15,0...55,0
1000H.: -
4th speed 1/min: 1150
Del. quantity cm³/: 39,0...45,0
1000H.: (36,0...48,0)
5th speed 1/min: 1100
Del. quantity cm³/: 57,5...60,5
1000H.: (56,0...62,0)
6th speed 1/min: 900
Del. quantity cm³/: 61,5...64,5
1000H.: (59,5...66,5)
7th speed 1/min: 750
Del. quantity cm³/: 62,0...63,0
1000H.: (59,5...65,5)
8th speed 1/min: 500
Del. quantity cm³/: 57,0...65,0
1000H.: -

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1100
Del. quantity cm³/: 0..3
1000H.: -

Electr. shutoff:

Speed 1/min: 375
ELAB volt: -
Del. quantity cm³/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375

Del. quantity cm³/: 10,0..12,0
1000H.: (6,0...16,0)
2nd speed 1/min: 500
Del. quantity cm³/: 0,0...4,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130
Del. quantity cm³/: -
ind. 1000H: 70,0
2nd speed 1/min: 300
Del. quantity cm³/: -
max. 1000H : 70,0

Shutoff electromagnet:

Cut-in
min. voltage : 20,0
Rated voltage : 24,0

Mounting and assembly dimensions:

Designation

K	mm	: -
KF	mm	: 5,0...5,4
MS	mm	: 1,2...1,6
SVS max.	mm	: 1,7
XK	mm	: 18,8...20,8
XL	mm	: 12,1...15,5

Remarks:

: C.D.C. # 390 8207
Tractive electromagnet.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 L2
Edition : 11.07.89
replaces : 10.12.86
Calibrating oil : ISO 4113

Injection pump : VE 6/12F1150 R173-5
Type number : 0 460 426 086

Customer-specific information
Customer : CDC

Engine : 6 BTA - 590 I

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
pressure bar : 250...253

Perforated-plate
diameter mm : 0,5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0,3
(from BDC) : +-0,02 (0,04)

Start of delivery block
Piston stroke mm : 1,85
mm : +-0,02 (0,06)

Outlet : 0

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 750
Charge press. hPa: 1000

Setting value mm: 1,6...2,0

Supply-pump pressure:

Speed 1/min: 750
Charge press. hPa: 1000
Setting value bar: 3,3...3,9

Full-load del. with charge press.:

Speed 1/min: 750
Charge press. hPa: 1000
Del. quantity cm³/
1000H.: 82,5...83,5
Dispersion cm³/
1000H : (4,5)

Full-load del. w/out charge press.:

Speed 1/min : 500
Del. quantity cm³/
1000H.: 67,5...68,5

Low-idle speed regulation:

Speed 1/min: 375
Del. quantity cm³/
1000H.: 9,0...13,0
Dispersion cm³/
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1200
Charge press. hPa: 1000
Del. quantity cm³/
1000H: 64,0...70,0

Start:

Speed 1/min: 100
Del. quantity : -
mind cm³/1000H.: 70,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600
Charge press. hPa: 1000
TD travel mm: 0,5...1,3
mm: (0,2...1,6)

2nd speed 1/min: 750
Charge press. hPa: 1000
TD travel mm: 1,6...2,0
mm: (1,1...2,5)

3rd speed 1/min: 1150
Charge press. hPa: 1000

TD travel mm: 2,8...3,6
 mm: (2,5...3,9)

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
Supply-pump
pressure bar: 2,6...3,2
2nd speed 1/min: 750
Charge press. hPa: 1000
Supply-pump
pressure bar: 3,3...3,9
3rd speed 1/min: 1150
Charge press. hPa: 1000
Supply-pump
pressure bar: 4,9...5,5

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 1150
Charge press. hPa: 1000
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700*
Charge-air pressure-setting
point hPa: 400
Del. quantity cm³/: 77,5...78,5
 1000H.: (73,5...82,5)
2nd speed 1/min: 1300
Charge press. hPa: 1000
Del. quantity cm³/: 0,0...3,0
 1000H.: -
3rd speed 1/min: 1270
Charge press. hPa: 1000
Del. quantity cm³/: 0,0...15,0
 1000H.: -
4th speed 1/min: 1230
Charge press. hPa: 1000
Del. quantity cm³/: 15,0...55,0
 1000H.: -
5th speed 1/min: 1200
Charge press. hPa: 1000
Del. quantity cm³/: 64,0...70,0
 1000H.: (61,0...73,0)
6th speed 1/min: 1150
Charge press. hPa: 1000
Del. quantity cm³/: 76,0...79,0
 1000H.: (74,5...80,5)
7th speed 1/min: 900
Charge press. hPa: 1000
Del. quantity cm³/: 81,0...84,0
 1000H.: (79,5...85,5)

8th speed 1/min: 750
Charge press. hPa: 1000
Del. quantity cm³/: 82,5...83,5
 1000H.: (80,0...86,0)
9th speed 1/min: 700
Charge press. hPa: 400
Del. quantity cm³/: 77,5...78,5
 1000H.: (73,5...82,5)
10th speed 1/min: 500
Charge press. hPa: 1000
Del. quantity cm³/: 82,0...90,0
 1000H.: -
11th speed 1/min: 500
Charge press. hPa: -
Del. quantity cm³/: 67,5...68,5
 1000H.: (63,5...72,5)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1150
Del. quantity cm³/: 0..3
 1000H.: -

Electr. shutoff:

Speed 1/min: 375
ELAB volt: -
Del. quantity cm³/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
Del. quantity cm³/: 9,0...13,0
 1000H.: (6,0...16,0)
2nd speed 1/min: 500
Del. quantity cm³/: 0,0...4,0
 1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 280
Del. quantity cm³/: -
ind. 1000H.: 75,0
2nd speed 1/min: 440
Del. quantity cm³/: -
max. 1000H.: 80,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	:	-
KF	mm	:	5,0...5,4
MS	mm	:	1,0...1,4
SVS max.	mm	:	1,6
XK	mm	:	18,8...20,8
XL	mm	:	11,6...15,0

Remarks:

: C.D.C. # 390 4726

* Correction at adjusting nut (46)

Operate control lever after each manifold-pressure compensator pressure change.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 L9
Edition : 11.07.89
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 6/12F1150 R173-5
Type number : 0 460 426 086
Customer Part-No. : 3 911 244

Customer-specific information
Customer : CDC

Engine : 6 BTA - 590 I

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
pressure bar : 250...253

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0,3
(from BDC) : +-0,02 (0,04)

Start of delivery block
Piston stroke mm: 1,85
mm: +-0,02 (0,06)

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 750

D28

Charge press. hPa: 1000
Setting value mm: 1,6...2,0

Supply-pump pressure:

Speed 1/min: 750
Charge press. hPa: 1000
Setting value bar: 3,3...3,9

Full-load del. with charge press.:

Speed 1/min: 750
Charge press. hPa: 1000
Del. quantity cm³/
1000H.: 82,5...83,5
Dispersion cm³ / : 4,0
1000H : (4,5)

Full-load del. w/out charge press.:

Speed 1/min : 500
Del. quantity cm³/
1000H.: 67,5...68,5

Low-idle speed regulation:

Speed 1/min: 375
Del. quantity cm³/
1000H.: 9,0...13,0
Dispersion cm³ / : 5,5
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1200
Charge press. hPa: 1000
Del. quantity cm³/
1000H: 64,0...70,0

Start:

Speed 1/min: 100
Del. quantity : -
mind cm³/1000H.: 70,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600
Charge press. hPa: 1000
TD travel mm: 0,5...1,3
mm: (0,2...1,6)

2nd speed 1/min: 750
Charge press. hPa: 1000
TD travel mm: 1,6...2,0
mm: (1,1...2,5)

3rd speed 1/min: 1150

Charge press. hPa: 1000
TD travel mm: 2,8...3,6
mm: (2,5...3,9)

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
Supply-pump pressure bar: 2,6...3,2
2nd speed 1/min: 750
Charge press. hPa: 1000
Supply-pump pressure bar: 3,3...3,9
3rd speed 1/min: 1150
Charge press. hPa: 1000
Supply-pump pressure bar: 4,9...5,5

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Overflow quantity cm³/10s: 41...83
(26...98)
2nd speed 1/min: 1150
Charge press. hPa: 1000
Overflow quantity cm³/10s: 55...138
(40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700*
Charge-air pressure-setting point hPa: 400
Del. quantity cm³/: 77,5...78,5
1000H.: (73,5...82,5)
2nd speed 1/min: 1300
Charge press. hPa: 1000
Del. quantity cm³/: 0,0...3,0
1000H.: -
3rd speed 1/min: 1270
Charge press. hPa: 1000
Del. quantity cm³/: 0,0...15,0
1000H.: -
4th speed 1/min: 1230
Charge press. hPa: 1000
Del. quantity cm³/: 15,0...55,0
1000H.: -
5th speed 1/min: 1200
Charge press. hPa: 1000
Del. quantity cm³/: 64,0...70,0
1000H.: (61,0...73,0)
6th speed 1/min: 1150
Charge press. hPa: 1000
Del. quantity cm³/: 76,0...79,0
1000H.: (74,5...80,5)
7th speed 1/min: 900
Charge press. hPa: 1000

Del. quantity cm³/: 81,0...84,0
1000H.: (79,5...85,5)
8th speed 1/min: 750
Charge press. hPa: 1000
Del. quantity cm³/: 82,5...83,5
1000H.: (80,0...86,0)
9th speed 1/min: 700
Charge press. hPa: 400
Del. quantity cm³/: 77,5...78,5
1000H.: (73,5...82,5)
10th speed 1/min: 500
Charge press. hPa: 1000
Del. quantity cm³/: 82,0...90,0
1000H.: -
11th speed 1/min: 500
Charge press. hPa: -
Del. quantity cm³/: 67,5...68,5
1000H.: (63,5...72,5)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1150
Del. quantity cm³/: 0..3
1000H.: -

Electr. shutoff:

Speed 1/min: 375
ELAB volt: -
Del. quantity cm³/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
Del. quantity cm³/: 9,0...13,0
1000H.: (6,0...16,0)
2nd speed 1/min: 500
Del. quantity cm³/: 0,0...4,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 280
Del. quantity cm³/: -
ind. 1000H: 75,0
2nd speed 1/min: 440
Del. quantity cm³/: -
max. 1000H : 80,0

Shutoff electromagnet:

Cut-in
min. voltage : 20,0
Rated voltage : 24,0

Mounting and assembly dimensions:

Designation

K	mm	: -
KF	mm	: 5,0...5,4
MS	mm	: 1,0...1,4
SVS max.	mm	: 1,6
XK	mm	: 18,8...20,8
XL	mm	: 11,6...15,0

Remarks:

:
* Correction at adjusting nut (46)

Operate control lever after each manifold-pressure compensator pressure change.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 L7
Edition : 12.07.89
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 6/12F1100 R173-7
Type number : 0 460 426 089
Customer Part-No. : 3 910 793

Customer-specific information
Customer : CDC

Engine : 6 BTA - 590 I

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
pressure bar : 250...253

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0,3
(from BDC) : +0,02 (0,04)

Start of delivery block
Piston stroke mm : 1,85
mm : +0,02 (0,06)

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 900

Charge press. hPa: 1000
Setting value mm: 2,0...2,4

Supply-pump pressure:

Speed 1/min: 900
Charge press. hPa: 1000
Setting value bar: 4,3...4,9

Full-load del. with charge press.:

Speed 1/min: 750
Charge press. hPa: 1000
Del. quantity cm³/
1000H.: 68,5...69,5
Dispersion cm³ / : 4,0
1000H : (4,5)

Full-load del. w/out charge press.:

Speed 1/min : 500
Del. quantity cm³/
1000H.: 39,0...40,0

Low-idle speed regulation:

Speed 1/min: 375
Charge press. hPa: -
Del. quantity cm³/
1000H.: 9,0...13,0
Dispersion cm³ / : 5,5
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1140
Charge press. hPa: 1000
Del. quantity cm³/
1000H: 46,0...52,0

Start:

Speed 1/min: 100
Del. quantity : -
mind cm³/1000H.: 60,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 700
Charge press. hPa: 1000
TD travel mm: 0,8...1,6
mm: (0,5...1,9)
2nd speed 1/min: 900
Charge press. hPa: 1000
TD travel mm: 2,0...2,4
mm: (1,5...2,9)

3rd speed 1/min: 1050
Charge press. hPa: 1000
TD travel mm: 2,4...3,2
mm: (2,1...3,5)

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
Supply-pump pressure bar: 2,6...3,2
2nd speed 1/min: 900
Charge press. hPa: 1000
Supply-pump pressure bar: 4,3...4,9
3rd speed 1/min: 1050
Charge press. hPa: 1000
Supply-pump pressure bar: 4,9...5,5

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Overflow quantity cm³/10s: 41...83
(26...98)
2nd speed 1/min: 1050
Charge press. hPa: 1000
Overflow quantity cm³/10s: 55...138
(40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700*
Charge-air pressure-setting point hPa: 400
LDA stroke mm: 5,8
Del. quantity cm³/: 61,5...62,5
1000H.: (58,0...66,0)
2nd speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm³/: 0,0...3,0
1000H.: -
3rd speed 1/min: 1200
Charge press. hPa: 1000
Del. quantity cm³/: 0,0...15,0
1000H.: -
4th speed 1/min: 1160
Charge press. hPa: 1000
Del. quantity cm³/: 15,0...55,0
1000H.: -
5th speed 1/min: 1140
Charge press. hPa: 1000
Del. quantity cm³/: 46,0...52,0
1000H.: (43,0...55,0)
6th speed 1/min: 1050
Charge press. hPa: 1000
Del. quantity cm³/: 64,5...67,5
1000H.: (63,0...69,0)
7th speed 1/min: 900

Charge press. hPa: 1000
Del. quantity cm³/: 65,5...68,5
1000H.: (64,0...70,0)
8th speed 1/min: 750
Charge press. hPa: 1000
Del. quantity cm³/: 68,5...69,5
1000H.: (66,0...72,0)
9th speed 1/min: 700
Charge press. hPa: 1000
Del. quantity cm³/: 61,5...62,5
1000H.: (58,0...66,0)
10th speed 1/min: 500
Charge press. hPa: 1000
Del. quantity cm³/: 65,0...73,0
1000H.: -
11th speed 1/min: 500
Charge press. hPa: -
Del. quantity cm³/: 39,0...40,0
1000H.: (35,5...43,5)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1050
Del. quantity cm³/: 0..3
1000H.: -

Elect. shutoff:

Speed 1/min: 375
ELAB volt: -
Del. quantity cm³/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
Del. quantity cm³/: 9,0...13,0
1000H.: (6,0...16,0)
2nd speed 1/min: 500
Del. quantity cm³/: 0,0...4,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 140
Charge press. hPa: -
Del. quantity cm³/: -
ind. 1000H: 60,0
2nd speed 1/min: 240
Charge press. hPa: -
Del. quantity cm³/: -
max. 1000H : 60,0

Shutoff electromagnet:

Cut-in min. voltage : 10,0

Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	: -
KF	mm	: 5,0...5,4
MS	mm	: 1,2...1,6
SVS max.	mm	: 2,4
XK	mm	: 20,2...22,2
XL	mm	: 11,2...14,6

Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

* Correction at adjusting nut (46)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 S10
Edition : 14.07.89
replaces : -
Calibrating oil : ISO 4113
Injection pump : VE 6/12F1250 R225-14
Type number : 0 460 426 092

Customer-specific information
Customer : CDC

Engine : 6 BT

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
pressure bar : 250...253

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0,3
(from BDC) : +-0,02 (0,04)

Start of delivery block
Piston stroke mm : 1,5
mm : +-0,02 (0,06)

Outlet : 0

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 750
Setting value mm: 3,4...3,8

E06

Supply-pump pressure:

Speed 1/min: 750
Setting value bar: 3,5...4,1

Full-load del. w/out charge press.:

Speed 1/min : 1100
Del. quantity cm³/
1000H.: 63,5...64,5

Low-idle speed regulation:

Speed 1/min: 345
Del. quantity cm³/
1000H.: 9,0...15,0

Full-load speed regulation:

Speed 1/min: 1320
Del. quantity cm³/
1000H.: 44,5...50,5

Start:

Speed 1/min: 100
Del. quantity : -
mind cm³/1000H.: 60,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500
TD travel mm: 1,5...2,3
mm: (1,2...2,6)
2nd speed 1/min: 750
TD travel mm: 3,4...3,8
mm: (2,9...4,3)
3rd speed 1/min: 1100
TD travel mm: 5,2...6,0
mm: (4,9...6,3)

Supply-pump pressure characteristic:

1st speed 1/min: 500
Supply-pump
pressure bar: 2,4...3,0
2nd speed 1/min: 750
Supply-pump
pressure bar: 3,5...4,1
3rd speed 1/min: 1100
Supply-pump
pressure bar: 4,9...5,5

Overflow quantity at overflow valve:

1st speed 1/min: 500
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 1250
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1450
Del. quantity cm³/: 0,0...3,0
1000H.: -
2nd speed 1/min: 1380
Del. quantity cm³/: 0,0...15,0
1000H.: -
3rd speed 1/min: 1330
Del. quantity cm³/: 15,0...55,0
1000H.: -
4th speed 1/min: 1320
Del. quantity cm³/: 44,5...50,5
1000H.: (41,5...53,5)
5th speed 1/min: 1250
Del. quantity cm³/: 60,8...63,8
1000H.: (59,3...65,3)
6th speed 1/min: 1100
Del. quantity cm³/: 63,5...64,5
1000H.: (61,0...67,0)
7th speed 1/min: 750
Del. quantity cm³/: 64,0...68,0
1000H.: (62,0...70,0)
8th speed 1/min: 500
Del. quantity cm³/: 65,0...73,0
1000H.: (63,0...75,0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1250
Del. quantity cm³/: 0..3
1000H.: -

Electr. shutoff:

Speed 1/min: 345
ELAB volt: -
Del. quantity cm³/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 345
Del. quantity cm³/: 9,0...15,0
1000H.: (7,0...17,0)
2nd speed 1/min: 500
Del. quantity cm³/: 0,0...4,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 270
Del. quantity cm³/: -
ind. 1000H: 55,0

2nd speed 1/min: 450
Del. quantity cm³/: -
max. 1000H : 75,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	: -
KF	mm	: 5,1...5,4
MS	mm	: 1,3...1,55
SVS max.	mm	: 1,2
XK	mm	: 20,2...22,2
XL	mm	: 10,8...14,2

Remarks:

: C.D.C. # 391 0791

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 S9
Edition : 14.07.89
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 6/12F1250 R225-14
Type number : 0 460 426 092
Customer Part-No. : 3 910 791

Customer-specific information
Customer : CDC

Engine : 6 BT

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
pressure bar : 250...253

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0,3
(from BDC) : $\pm 0,02$ (0,04)

Start of delivery block
Piston stroke mm : 1,5
mm : $\pm 0,02$ (0,06)

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 750

E08

Setting value mm: 3,4...3,8

Supply-pump pressure:

Speed 1/min: 750
Setting value bar: 3,5...4,1

Full-load del. w/out charge press.:

Speed 1/min : 1100
Del. quantity cm³/
1000H.: 63,5...64,5

Low-idle speed regulation:

Speed 1/min: 345
Del. quantity cm³/
1000H.: 9,0...15,0

Full-load speed regulation:

Speed 1/min: 1320
Del. quantity cm³/
1000H: 44,5...50,5

Start:

Speed 1/min: 100
Del. quantity : -
mind cm³/1000H.: 60,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500
TD travel mm: 1,5...2,3
mm: (1,2...2,6)
2nd speed 1/min: 750
TD travel mm: 3,4...3,8
mm: (2,9...4,3)
3rd speed 1/min: 1100
TD travel mm: 5,2...6,0
mm: (4,9...6,3)

Supply-pump pressure characteristic:

1st speed 1/min: 500
Supply-pump
pressure bar: 2,4...3,0
2nd speed 1/min: 750
Supply-pump
pressure bar: 3,5...4,1
3rd speed 1/min: 1100
Supply-pump
pressure bar: 4,9...5,5

Overflow quantity at overflow valve:

1st speed 1/min: 500
Overflow : 41...83
quantity cm3/10s: (26...98)
2nd speed 1/min: 1250
Overflow : 55...138
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1450
Del. quantity cm3/: 0,0...3,0
1000H.: -
2nd speed 1/min: 1380
Del. quantity cm3/: 0,0...15,0
1000H.: -
3rd speed 1/min: 1330
Del. quantity cm3/: 15,0...55,0
1000H.: -
4th speed 1/min: 1320
Del. quantity cm3/: 44,5...50,5
1000H.: (41,5...53,5)
5th speed 1/min: 1250
Del. quantity cm3/: 60,8...63,8
1000H.: (59,3...65,3)
6th speed 1/min: 1100
Del. quantity cm3/: 63,5...64,5
1000H.: (61,0...67,0)
7th speed 1/min: 750
Del. quantity cm3/: 64,0...68,0
1000H.: (62,0...70,0)
8th speed 1/min: 500
Del. quantity cm3/: 65,0...73,0
1000H.: (63,0...75,0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1250
Del. quantity cm3/: 0..3
1000H.: -

Electr. shutoff:

Speed 1/min: 345
ELAB volt: -
Del. quantity cm3/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 345
Del. quantity cm3/: 9,0...15,0
1000H.: (7,0...17,0)
2nd speed 1/min: 500
Del. quantity cm3/: 0,0...4,0
1000H.: -

Automatic starting fuel delivery:

E09

1st speed 1/min: 270
Del. quantity cm3/: -
ind. 1000H.: 55,0

2nd speed 1/min: 450
Del. quantity cm3/: -
max. 1000H.: 75,0

Shutoff electromagnet:

Cut-in
min. voltage : 20,0
Rated voltage : 24,0

Mounting and assembly dimensions:

Designation

K	mm	:	-
KF	mm	:	5,1...5,4
MS	mm	:	1,3...1,55
SVS max.	mm	:	1,2
XK	mm	:	20,2...22,2
XL	mm	:	10,8...14,2

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 L5
Edition : 11.07.89
replaces : 04.11.87
Calibrating oil : ISO 4113

Injection pump : VE 6/12F1250 R173-9
Type number : 0 460 426 102

Customer-specific information
Customer : CUMMINS

Engine : 6 BTA -590 IND.

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
pressure bar : 250...253

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0,3
(from BDC) : +0,02 (0,04)

Start of delivery block
Piston stroke mm : 1,85
mm : +0,02 (0,06)

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 750
Charge press. hPa: 1000

Setting value mm: 1,3...1,7

Supply-pump pressure:

Speed 1/min: 750
Charge press. hPa: 1000
Setting value bar: 3,2...3,8

Full-load del. with charge press.:

Speed 1/min: 750
Charge press. hPa: 1000
Del. quantity cm³/
1000H.: 84,5...85,5
Dispersion cm³/
1000H. : 4,0
1000H. : (4,5)

Full-load del. w/out charge press.:

Speed 1/min : 500
Del. quantity cm³/
1000H.: 68,5...69,5

Low-idle speed regulation:

Speed 1/min: 375
Charge press. hPa: -
Del. quantity cm³/
1000H.: 8,0...14,0
Dispersion cm³/
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1300
Charge press. hPa: 1000
Del. quantity cm³/
1000H.: 59,0...65,0

Start:

Speed 1/min: 100
Del. quantity : -
mind cm³/1000H.: 70,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600
Charge press. hPa: 1000
TD travel mm: 0,4...1,2
mm: (0,1...1,5)

2nd speed 1/min: 750
Charge press. hPa: 1000
TD travel mm: 1,3...1,7
mm: (0,8...2,2)

3rd speed 1/min: 1050

Charge press. hPa: 1000
TD travel mm: 2,0...2,8
mm: (1,7...3,1)

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
Supply-pump pressure bar: 2,2...2,8
2nd speed 1/min: 750
Charge press. hPa: 1000
Supply-pump pressure bar: 3,2...3,8
3rd speed 1/min: 1050
Charge press. hPa: 1000
Supply-pump pressure bar: 4,5...5,1

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Overflow quantity cm³/10s: 41...83
(26...98)
2nd speed 1/min: 1250
Charge press. hPa: 1000
Overflow quantity cm³/10s: 55...138
(40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700*
Charge-air pressure-setting point hPa: 400
Del. quantity cm³/: 77,5...78,5
1000H.: (74,0...82,0)
2nd speed 1/min: 1400
Charge press. hPa: 1000
Del. quantity cm³/: 0,0...3,0
1000H.: -
3rd speed 1/min: 1370
Charge press. hPa: 1000
Del. quantity cm³/: 0,0...15,0
1000H.: -
4th speed 1/min: 1330
Charge press. hPa: 1000
Del. quantity cm³/: 15,0...55,0
1000H.: -
5th speed 1/min: 1300
Charge press. hPa: 1000
Del. quantity cm³/: 59,0...65,0
1000H.: (56,0...68,0)
6th speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm³/: 76,0...79,0
1000H.: (74,5...80,5)
7th speed 1/min: 1050
Charge press. hPa: 1000

Del. quantity cm³/: 80,5...83,5
1000H.: (78,5...85,5)
8th speed 1/min: 750
Charge press. hPa: 1000
Del. quantity cm³/: 84,5...85,5
1000H.: (82,0...88,0)
9th speed 1/min: 700
Charge press. hPa: 400
Del. quantity cm³/: 77,5...78,5
1000H.: (74,0...82,0)
10th speed 1/min: 500
Charge press. hPa: 1000
Del. quantity cm³/: 84,0...92,0
1000H.: -
11th speed 1/min: 500
Charge press. hPa: -
Del. quantity cm³/: 68,5...69,5
1000H.: (65,0...73,0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1250
Del. quantity cm³/: 0..3
1000H.: -

Electr. shutoff:

Speed 1/min: 375
ELAB volt: -
Del. quantity cm³/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
Del. quantity cm³/: 8,0...14,0
1000H.: (6,0...16,0)
2nd speed 1/min: 500
Del. quantity cm³/: 0,0...4,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 250
Del. quantity cm³/: -
ind. 1000H: 70,0
2nd speed 1/min: 450
Del. quantity cm³/: -
max. 1000H : 88,0

Shutoff electromagnet:

Cut-in min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	: -
KF	mm	: 5,0...5,4
MS	mm	: 1,0...1,4
SVS max.	mm	: 2,3
XK	mm	: 18,8...20,8
XL	mm	: 13,8...17,2

Remarks:

: C.D.C. # 390 8219

* Correction at adjusting nut (46)

Operate control lever after each manifold-pressure compensator pressure change.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 L6
Edition : 11.07.89
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 6/12F1250 R173-9
Type number : 0 460 426 102
Customer Part-No. : 3 907 643

Customer-specific information
Customer : CUMMINS

Engine : 6 BTA -590 IND.

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
pressure bar : 250...253

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0,3
(from BDC) : +-0,02 (0,04)

Start of delivery block
Piston stroke mm: 1,85
mm: +-0,02 (0,06)
Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 750

Charge press. hPa: 1000
Setting value mm: 1,3...1,7

Supply-pump pressure:

Speed 1/min: 750
Charge press. hPa: 1000
Setting value bar: 3,2...3,8

Full-load del. with charge press.:

Speed 1/min: 750
Charge press. hPa: 1000
Del. quantity cm³/
1000H.: 84,5...85,5
Dispersion cm³ / : 4,0
1000H.: (4,5)

Full-load del. w/out charge press.:

Speed 1/min : 500
Del. quantity cm³/
1000H.: 68,5...69,5

Low-idle speed regulation:

Speed 1/min: 375
Charge press. hPa: -
Del. quantity cm³/
1000H.: 8,0...14,0
Dispersion cm³ / : 5,5
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1300
Charge press. hPa: 1000
Del. quantity cm³/
1000H.: 59,0...65,0

Start:

Speed 1/min: 100
Del. quantity : -
mind cm³/1000H.: 70,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600
Charge press. hPa: 1000
TD travel mm: 0,4...1,2
mm: (0,1...1,5)
2nd speed 1/min: 750
Charge press. hPa: 1000
TD travel mm: 1,3...1,7
mm: (0,8...2,2)

3rd speed 1/min: 1050
Charge press. hPa: 1000
TD travel mm: 2,0...2,8
mm: (1,7...3,1)

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
Supply-pump pressure bar: 2,2...2,8
2nd speed 1/min: 750
Charge press. hPa: 1000
Supply-pump pressure bar: 3,2...3,8
3rd speed 1/min: 1050
Charge press. hPa: 1000
Supply-pump pressure bar: 4,5...5,1

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Overflow quantity cm³/10s: 41...83
(26...98)
2nd speed 1/min: 1250
Charge press. hPa: 1000
Overflow quantity cm³/10s: 55...138
(40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700*
Charge-air pressure-setting point hPa: 400
Del. quantity cm³/: 77,5...78,5
1000H.: (74,0...82,0)
2nd speed 1/min: 1400
Charge press. hPa: 1000
Del. quantity cm³/: 0,0...3,0
1000H.: -
3rd speed 1/min: 1370
Charge press. hPa: 1000
Del. quantity cm³/: 0,0...15,0
1000H.: -
4th speed 1/min: 1330
Charge press. hPa: 1000
Del. quantity cm³/: 15,0...55,0
1000H.: -
5th speed 1/min: 1300
Charge press. hPa: 1000
Del. quantity cm³/: 59,0...65,0
1000H.: (56,0...68,0)
6th speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm³/: 76,0...79,0
1000H.: (74,5...80,5)
7th speed 1/min: 1050
Charge press. hPa: 1000

Del. quantity cm³/: 80,5...83,5
1000H.: (78,5...85,5)
8th speed 1/min: 750
Charge press. hPa: 1000
Del. quantity cm³/: 84,5...85,5
1000H.: (82,0...88,0)
9th speed 1/min: 700
Charge press. hPa: 400
Del. quantity cm³/: 77,5...78,5
1000H.: (74,0...82,0)
10th speed 1/min: 500
Charge press. hPa: 1000
Del. quantity cm³/: 84,0...92,0
1000H.: -
11th speed 1/min: 500
Charge press. hPa: -
Del. quantity cm³/: 68,5...69,5
1000H.: (65,0...73,0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1250
Del. quantity cm³/: 0..3
1000H.: -

Electr. shutoff:

Speed 1/min: 375
ELAB volt: -
Del. quantity cm³/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
Del. quantity cm³/: 8,0...14,0
1000H.: (6,0...16,0)
2nd speed 1/min: 500
Del. quantity cm³/: 0,0...4,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 250
Del. quantity cm³/: -
ind. 1000H: 70,0
2nd speed 1/min: 450
Del. quantity cm³/: -
max. 1000H : 88,0

Shutoff electromagnet:

Cut-in
min. voltage : 20,0
Rated voltage : 24,0

Mounting and assembly dimensions:

Designation

K	mm	: -
KF	mm	: 5,0...5,4
MS	mm	: 1,0...1,4
SVS max.	mm	: 2,0
XK	mm	: 18,8...20,8
XL	mm	: 13,8...17,2

Remarks:

:

* Correction at adjusting nut (46)

Operate control lever after each manifold-pressure compensator pressure change.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 U40
Edition : 12.07.89
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 6/12F1250 R367
Type number : 0 460 426 137

Customer-specific information
Customer : CDC

Engine : 6 BT-5,9 IND

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
pressure bar : 250...253

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0,3
(from BDC) : $\pm 0,02$ (0,04)

Start of delivery block
Piston stroke mm : 1,5
mm : $\pm 0,02$ (0,06)

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 850
Setting value mm: 3,8...4,2

Supply-pump pressure:

Speed 1/min: 1100
Setting value bar: 3,9...4,5

Full-load del. w/out charge press.:

Speed 1/min : 1100
Del. quantity cm³/
1000H.: 56,5...57,5
Dispersion cm³/: 4,0
1000H.: (4,5)

Low-idle speed regulation:

Speed 1/min: 375
Del. quantity cm³/
1000H.: 8,0...14,0
Dispersion cm³/: 5,5
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1450
Del. quantity cm³/
1000H.: 37,0...43,0

Start.

Speed 1/min: 100
Del. quantity : -
mind cm³/1000H.: 50,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500
TD travel mm: 1,5...2,3
mm: (1,2...2,6)
2nd speed 1/min: 850
TD travel mm: 3,8...4,2
mm: (3,3...4,7)
3rd speed 1/min: 1100
TD travel mm: 5,4...6,2
mm: (5,1...6,5)

Supply-pump pressure characteristic:

1st speed 1/min: 500
Supply-pump
pressure bar: 2,5...3,1
2nd speed 1/min: 1100
Supply-pump
pressure bar: 3,9...4,5
3rd speed 1/min: 1400

Supply-pump
pressure bar: 4,9...5,5

Overflow quantity at overflow valve:

1st speed 1/min: 500
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 1400
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1580
Del. quantity cm³/: 0,0...3,0
1000H.: -
2nd speed 1/min: 1530
Del. quantity cm³/: 0,0...15,0
1000H.: -
3rd speed 1/min: 1490
Del. quantity cm³/: 15,0...55,0
1000H.: -
4th speed 1/min: 1450
Del. quantity cm³/: 37,0...43,0
1000H.: (34,0...46,0)
5th speed 1/min: 1400
Del. quantity cm³/: 53,5...56,5
1000H.: (52,0...58,0)
6th speed 1/min: 1100
Del. quantity cm³/: 56,5...57,5
1000H.: (54,0...60,0)
7th speed 1/min: 850
Del. quantity cm³/: 52,5...56,5
1000H.: (50,5...58,5)
8th speed 1/min: 500
Del. quantity cm³/: 39,0...47,0
1000H.: (37,0...49,0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1400
Del. quantity cm³/: 0..3
1000H.: -

Electr. shutoff:

Speed 1/min: 375
ELAB volt: -
Del. quantity cm³/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
Del. quantity cm³/: 8,0...14,0
1000H.: (6,0...16,0)
2nd speed 1/min: 450

Del. quantity cm³/: 0,0...4,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130
Del. quantity cm³/: -
ind. 1000H.: 60,0
2nd speed 1/min: 400
Del. quantity cm³/: -
max. 1000H.: 60,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	: -
KF	mm	: 5,0...5,4
MS	mm	: 1,3...1,7
SVS max.	mm	: -
XK	mm	: 18,8...20,8
XL	mm	: 9,6...13,0

Remarks:

: C.D.C. # 391 7542

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 U35
Edition : 10.07.89
replaces : -
Calibrating oil : ISO 4113
Injection pump : VE 6/12F1000 R369
Type number : 0 460 426 138

Customer-specific information
Customer : CDC

Engine : 6BT

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
pressure bar : 250...253

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0,3
(from BDC) : $\pm 0,02$ (0,04)

Start of delivery block
Piston stroke mm : 1,5
mm : $\pm 0,02$ (0,06)

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 750
Setting value mm: 3,0...3,4

Supply-pump pressure:

Speed 1/min: 750
Setting value bar: 3,3...3,9

Full-load del. w/out charge press.:

Speed 1/min : 850
Del. quantity cm³/
1000H.: 63,0...64,0
Dispersion cm³/
1000H.: (4,5)

Low-idle speed regulation:

Speed 1/min: 450
Del. quantity cm³/
1000H.: 4,0...10,0
Dispersion cm³/
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1040
Del. quantity cm³/
1000H.: 53,0...59,0

Start.

Speed 1/min: 100
Del. quantity : -
mind cm³/1000H.: 60,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500
TD travel mm: 1,2...2,0
mm: (0,9...2,3)
2nd speed 1/min: 750
TD travel mm: 3,0...3,4
mm: (2,5...3,9)
3rd speed 1/min: 1000
TD travel mm: 4,6...5,4
mm: (4,3...5,7)

Supply-pump pressure characteristic:

1st speed 1/min: 500
Supply-pump
pressure bar: 2,3...2,9
2nd speed 1/min: 750
Supply-pump
pressure bar: 3,3...3,9
3rd speed 1/min: 1000

Supply-pump
pressure bar: 4,5...5,1

Overflow quantity at overflow valve:

1st speed 1/min: 500
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 1000
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1120
Del. quantity cm³/: 0,0...3,0
1000H.: -
2nd speed 1/min: 1100
Del. quantity cm³/: 0,0...15,0
1000H.: -
3rd speed 1/min: 1060
Del. quantity cm³/: 15,0...45,0
1000H.: -
4th speed 1/min: 1040
Del. quantity cm³/: 53,0...59,0
1000H.: (50,0...62,0)
5th speed 1/min: 1000
Del. quantity cm³/: 61,0...64,0
1000H.: (59,5...65,5)
6th speed 1/min: 850
Del. quantity cm³/: 63,0...64,0
1000H.: (60,5...66,5)
7th speed 1/min: 750
Del. quantity cm³/: 61,5...65,5
1000H.: (59,5...67,5)
8th speed 1/min: 500
Del. quantity cm³/: 37,5...45,5
1000H.: (35,5...47,5)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1000
Del. quantity cm³/: 0..3
1000H.: -

Electr. shutoff:

Speed 1/min: 450
ELAB volt: -
Del. quantity cm³/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 450
Del. quantity cm³/: 4,0...10,0
1000H.: (2,0...12,0)
2nd speed 1/min: 500

Del. quantity cm³/: 0,0...4,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130
Del. quantity cm³/: -
ind. 1000H.: 60,0

2nd speed 1/min: 240
Del. quantity cm³/: -
max. 1000H.: 60,0

Shutoff electromagnet:

Cut-in
min. voltage : 20,0
Rated voltage : 24,0

Mounting and assembly dimensions:

Designation
K mm : -
KF mm : 5,0...5,4
MS mm : 0,8...1,2
XK mm : 18,8...20,8
XL mm : 9,9...13,3

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 U39
Edition : 12.07.89
replaces : -
Calibrating oil : ISO 4113
Injection pump : VE 6/12F1250 R372
Type number : 0 460 426 141

Customer-specific information
Customer : CDC

Engine : 6 BT-5.9 IND.

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
pressure bar : 250...253

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0,3
(from BDC) : $\pm 0,02$ (0,04)

Start of delivery block
Piston stroke mm : 1,3
mm : $\pm 0,02$ (0,06)

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 750
Setting value mm: 3,4...3,8

Supply-pump pressure:

Speed 1/min: 750
Setting value bar: 3,5...4,1

Full-load del. w/out charge press.:

Speed 1/min : 1100
Del. quantity cm³/
1000H.: 73,0...74,0
Dispersion cm³/: 4,0
1000H.: (4,5)

Low-idle speed regulation:

Speed 1/min: 360
Del. quantity cm³/
1000H.: 8,0...14,0
Dispersion cm³/: 5,5
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1300
Del. quantity cm³/
1000H.: 51,0...57,0

Start.

Speed 1/min: 100
Del. quantity : -
mind cm³/1000H.: 60,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500
TD travel mm: 1,5...2,3
mm: (1,2...2,6)
2nd speed 1/min: 750
TD travel mm: 3,4...3,8
mm: (2,9...4,3)
3rd speed 1/min: 1100
TD travel mm: 5,2...6,0
mm: (4,9...6,3)

Supply-pump pressure characteristic:

1st speed 1/min: 500
Supply-pump
pressure bar: 2,4...3,0
2nd speed 1/min: 750
Supply-pump
pressure bar: 3,5...4,1
3rd speed 1/min: 1100

Supply-pump
pressure bar: 4,8...5,4

Overflow quantity at overflow valve:

1st speed 1/min: 500
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 1250
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1400
Del. quantity cm³/: 0,0...3,0
1000H.: -
2nd speed 1/min: 1390
Del. quantity cm³/: 0,0...15,0
1000H.: -
3rd speed 1/min: 1350
Del. quantity cm³/: 15,0...55,0
1000H.: -
4th speed 1/min: 1300
Del. quantity cm³/: 51,0...57,0
1000H.: (48,0...60,0)
5th speed 1/min: 1250
Del. quantity cm³/: 70,0...73,0
1000H.: (68,5...74,5)
6th speed 1/min: 1100
Del. quantity cm³/: 73,0...74,0
1000H.: (70,5...76,5)
7th speed 1/min: 900
Del. quantity cm³/: 74,5...78,5
1000H.: -
8th speed 1/min: 750
Del. quantity cm³/: 76,0...80,0
1000H.: (74,0...82,0)
9th speed 1/min: 500
Del. quantity cm³/: 64,0...72,0
1000H.: (62,0...74,0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1250
Del. quantity cm³/: 0..3
1000H.: -

Electr. shutoff:

Speed 1/min: 360
ELAB volt: -
Del. quantity cm³/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 360

E21

Del. quantity cm³/: 8,0...14,0
1000H.: (6,0...16,0)

Automatic starting fuel delivery:

1st speed 1/min: 130
Del. quantity cm³/: -
ind. 1000H.: 70,0

2nd speed 1/min: 240
Del. quantity cm³/: -
max. 1000H.: 70,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation
K mm : -
KF mm : 5,0...5,4
MS mm : 0,6...1,0
SVS max. mm : -
XK mm : 18,8...20,8
XL mm : 11,1...14,5

Remarks:

: C.D.C. # 391 6947

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 U38
Edition : 12.07.89
replaces : -
Calibrating oil : ISO 4113
Injection pump : VE 6/12F1100 R225-23
Type number : 0 460 426 143

Customer-specific information
Customer : CDC

Engine : 6 BT -5,9 IN

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
pressure bar : 250...253

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0,3
(from BDC) : $\pm 0,02$ (0,04)

Start of delivery block
Piston stroke mm : 1,3
mm : $\pm 0,02$ (0,06)

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 750
Setting value mm: 3,4...3,8

Supply-pump pressure:

Speed 1/min: 750
Setting value bar: 3,5...4,1

Full-load del. w/out charge press.:

Speed 1/min : 900
Del. quantity cm³/
1000H.: 71,5...72,5
Dispersion cm³/
1000H.: (4,5)

Low-idle speed regulation:

Speed 1/min: 375
Del. quantity cm³/
1000H.: 8,0...14,00
Dispersion cm³/
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1190
Del. quantity cm³/
1000H.: 50,0...56,0

Start.

Speed 1/min: 100
Del. quantity : -
mind cm³/1000H.: 60,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500
TD travel mm: 1,5...2,3
mm: (1,2...2,6)
2nd speed 1/min: 750
TD travel mm: 3,4...3,8
mm: (2,9...4,3)
3rd speed 1/min: 1100
TD travel mm: 5,5...6,3
mm: (5,2...6,5)

Supply-pump pressure characteristic:

1st speed 1/min: 500
Supply-pump
pressure bar: 2,4...3,0
2nd speed 1/min: 750
Supply-pump
pressure bar: 3,5...4,1
3rd speed 1/min: 1100

Supply-pump
pressure bar: 4,8...5,4

Overflow quantity at overflow valve:

1st speed 1/min: 500
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 1150
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1300
Del. quantity cm³/: 0,0...3,0
1000H.: -
2nd speed 1/min: 1260
Del. quantity cm³/: 0,0...15,0
1000H.: -
3rd speed 1/min: 1220
Del. quantity cm³/: 15,0...55,0
1000H.: -
4th speed 1/min: 1190
Del. quantity cm³/: 50,0...56,0
1000H.: (47,0...60,0)
5th speed 1/min: 1150
Del. quantity cm³/: 66,5...69,5
1000H.: (65,0...71,0)
6th speed 1/min: 900
Del. quantity cm³/: 71,5...72,5
1000H.: (69,0...75,0)
7th speed 1/min: 500
Del. quantity cm³/: 58,0...66,0
1000H.: -

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 375
Del. quantity cm³/: 0..3
1000H.: -

Electr. shutoff:

Speed 1/min: 375
ELAB volt: -
Del. quantity cm³/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
Del. quantity cm³/: 8,0...14,0
1000H.: (6,0...16,0)
2nd speed 1/min: 450
Del. quantity cm³/: 0,0...4,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130
Del. quantity cm³/: -
ind. 1000H: 70,0

2nd speed 1/min: 240
Del. quantity cm³/: -
max. 1000H : 60,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	: -
KF	mm	: 5,0...5,4
MS	mm	: 0,8...1,2
SVS max.	mm	: -
XK	mm	: 20,2...22,2
XL	mm	: 11,5...14,9

Remarks:

: C.D.C. # 391 6949

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 U36
Edition : 10.07.89
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 6/12F1050 R373-2
Type number : 0 460 426 145

Customer-specific information
Customer : CDC

Engine : 6 BTA 5,9L

Power k: 127
Speed 1/mi: 2100

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
pressure bar : 250...253

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0,3
(from BDC): +-0,02 (0,04)

Start of delivery block
Piston stroke mm: 1,85
mm: +-0,02 (0,06)

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 750
Charge press. hPa: 1000
Setting value mm: 1,5...1,9

Supply-pump pressure:

Speed 1/min: 750
Charge press. hPa: 1000
Setting value bar: 2,9...3,5

Full-load del. with charge press.:

Speed 1/min: 750
Charge press. hPa: 1000
Del. quantity cm³/
1000H.: 94,5...95,5
Dispersion cm³/ : 4,0
1000H.: (4,5)

Full-load del. w/out charge press.:

Speed 1/min : 500
Del. quantity cm³/
1000H.: 50,5...51,5
Dispersion cm³/ : 9,0
1000H.: -

Low-idle speed regulation:

Speed 1/min: 375
Charge press. hPa: -
Del. quantity cm³/
1000H.: 8,0...12,0
Dispersion cm³/ : 5,5
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1100
Charge press. hPa: 1000
Del. quantity cm³/
1000H.: 73,0...79,0

Start:

Speed 1/min: 100
Charge press. hPa: -
Del. quantity : -
mind cm³/1000H.: 60,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600
Charge press. hPa: 1000

TD travel mm: 0,5...1,3
 mm: (0,2...1,6)
 2nd speed 1/min: 750
 Charge press. hPa: 1000
 TD travel mm: 1,5...1,9
 mm: (1,0...2,4)
 3rd speed 1/min: 1050
 Charge press. hPa: 1000
 TD travel mm: 2,5...3,3
 mm: (2,2...3,6)

Supply-pump pressure characteristic:

1st speed 1/min: 500
 Charge press. hPa: 1000
 Supply-pump pressure bar: 1,8...2,4
 2nd speed 1/min: 750
 Charge press. hPa: 1000
 Supply-pump pressure bar: 2,9...3,5
 3rd speed 1/min: 1050
 Charge press. hPa: 1000
 Supply-pump pressure bar: 4,3...4,9

Overflow quantity at overflow valve:

1st speed 1/min: 500
 Charge press. hPa: -
 Overflow quantity cm³/10s: 41...83
 2nd speed 1/min: 1050
 Charge press. hPa: 1000
 Overflow quantity cm³/10s: 55...138
 3rd speed 1/min: 1170
 Charge press. hPa: 1000
 Overflow quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700*
 Charge-air pressure-setting point hPa: 300
 LDA stroke mm: 7,3
 Del. quantity cm³/1000H.: 79,5...80,5
 1000H.: (75,5...84,5)
 2nd speed 1/min: 1200
 Charge press. hPa: 1000
 Del. quantity cm³/1000H.: 0,0...3,0
 3rd speed 1/min: 1170
 Charge press. hPa: 1000
 Del. quantity cm³/1000H.: 0,0...15,0
 4th speed 1/min: 1140
 Charge press. hPa: 1000
 Del. quantity cm³/1000H.: 15,0...55,0
 5th speed 1/min: 1100
 Charge press. hPa: 1000

Del. quantity cm³/1000H.: 73,0...79,0
 1000H.: (70,0...82,0)
 6th speed 1/min: 1050
 Charge press. hPa: 1000
 Del. quantity cm³/1000H.: 83,5...86,5
 1000H.: (82,0...88,0)
 7th speed 1/min: 900
 Charge press. hPa: 1000
 Del. quantity cm³/1000H.: 87,5...90,5
 1000H.: (86,0...92,0)
 8th speed 1/min: 750
 Charge press. hPa: 1000
 Del. quantity cm³/1000H.: 94,5...95,5
 1000H.: (92,0...98,0)
 9th speed 1/min: 700
 Charge press. hPa: 300
 Del. quantity cm³/1000H.: 79,5...80,5
 1000H.: (75,5...84,5)
 10th speed 1/min: 500
 Charge press. hPa: 1000
 Del. quantity cm³/1000H.: 98,0...106,0
 11th speed 1/min: 500
 Charge press. hPa: -
 Del. quantity cm³/1000H.: 50,5...51,5
 1000H.: (46,5...55,5)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1050
 Del. quantity cm³/1000H.: 0...3

Electr. shutoff:

Speed 1/min: 375
 ELAB volt: -
 Del. quantity cm³/1000H.: 0,0...3,0
 max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
 Del. quantity cm³/1000H.: 8,0...12,0
 1000H.: (5,0...15,0)
 2nd speed 1/min: 500
 Del. quantity cm³/1000H.: 0,0...4,0

Automatic starting fuel delivery:

1st speed 1/min: 250
 Charge press. hPa: -
 Del. quantity cm³/1000H.: ind. 45,0
 2nd speed 1/min: 450
 Charge press. hPa: -

Del. quantity cm³/: -
max. 1000H : 55,0

Shutoff electromagnet:

Cut-in
min. voltage : 20,0
Rated voltage : 24,0

Mounting and assembly dimensions:

Designation

K	mm	: -
KF	mm	: 5,0...5,4
MS	mm	: 1,2...1,6
SVS max.	mm	: 1,2
XK	mm	: 21,8...23,8
XL	mm	: 13,8...17,2

Remarks:

* Correction at adjusting nut (46) 00

Operate control lever after each
manifold-pressure compensator pressure
change.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV 1,9 A
Edition : 19.07.89
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 4/ 8F2200 R337
Type number : 0 460 484 022

Customer-specific information
Customer : VW

Engine : 086

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : -
(from BDC) : -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1250
Setting value mm: 3,1...3,5

Supply-pump pressure:

Speed 1/min: 1250
Setting value bar: 5,5...6,1

Full-load del. w/out charge press.:

Speed 1/min : 1250
Del.quantity cm3/
1000H.: 35,5...36,5
Dispersion cm3/: 2,0
1000H.: (3,0)

Low-idle speed regulation:

Speed 1/min: 450
Del.quantity cm3/
1000H.: 7,0...9,0
Dispersion cm3/: 2,0
1000H.: (3,0)

Residual-Delivery Setting

Speed 1/min: 575
Del.quantity cm3/
1000H.: 2,0...3,0

Full-load speed regulation:

Speed 1/min: 2525
Del.quantity cm3/
1000H.: 10,0...14,0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm3/1000H.: 35,0

Load-dependent start of delivery:

Speed 1/min: 1250

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 750
TD travel mm: 1,1...1,9
mm: (0,8...2,2)
2nd speed 1/min: 1250
TD travel mm: 3,1...3,5
mm: (2,6...4,0)
3rd speed 1/min: 2200
TD travel mm: 7,1...7,9
mm: (6,8...8,2)

Supply-pump pressure characteristic:

1st speed 1/min: 750
Supply-pump
pressure bar: 4,3...4,9
2nd speed 1/min: 1250
Supply-pump
pressure bar: 5,5...6,1
3rd speed 1/min: 2200

Supply-pump
pressure bar: 7,7...8,3

Overflow quantity at overflow valve:

1st speed 1/min: 750
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 2200
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2700
Del. quantity cm³/: 0,0...6,0
1000H.: -
2nd speed 1/min: 2525
Del. quantity cm³/: 10,0...14,0
1000H.: (8,0...16,0)
3rd speed 1/min: 2425
Del. quantity cm³/: 18,0...28,0
1000H.: (17,0...29,0)
4th speed 1/min: 2200
Del. quantity cm³/: 31,0...33,0
1000H.: (29,8...34,2)
5th speed 1/min: 1250
Del. quantity cm³/: 35,5...36,5
1000H.: (33,8...38,2)
6th speed 1/min: 750
Del. quantity cm³/: 30,0...33,0
1000H.: (28,5...34,5)
7th speed 1/min: 500
Del. quantity cm³/: 27,5...32,5
1000H.: (25,0...35,0)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 450
ELAB volt: -
Del. quantity cm³/: 0,0...3,0

Idle delivery:

1st speed 1/min: 450
Del. quantity cm³/: 7,0...9,0
1000H.: (4,0...12,0)

High Idle:

Speed 1/min: 525
Del. quantity cm³/: 7,0...9,0
1000H.: (4,0...12,0)

Residual:

Speed 1/min: 525

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Del. quantity : 2,5...4,5
1000H.: (1,0...6,0)

Automatic starting fuel delivery:

1st speed 1/min: 180
Del. quantity cm³/: -
ind. 1000H.: 35,0

2nd speed 1/min: 380
Del. quantity cm³/: -
max. 1000H.: 38,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation
K mm : 3,2...3,4
KF mm : 5,1...5,5
MS mm : 1,1...1,5
XK mm : 20,0...22,0
XL mm : 9,7...13,1

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU 1,9 K2
Edition : 14.07.89
replaces : 04.11.87
Calibrating oil : ISO 4113

Injection pump : VE 4/ 9F2300 R162-4
Customer Part-No. : 0 460 494 224

Customer-specific information
Customer : PEUGEOT

Engine : XUD9

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
pressure bar : 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6
x Wall thickness : 2
x Length mm : 450

Start of delivery
Prestroke mm : -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1250
Setting value mm: 4,0...4,4

Supply-pump pressure:

Speed 1/min: 1250
Setting value bar: 4,2...4,8

Full-load del. w/out charge press.:

Speed 1/min : 1250
Del.quantity cm3/
1000H.: 28,0...29,0
Dispersion cm3/ : 2,5
1000H.: (2,5)

Low-idle speed regulation:

Speed 1/min: 375
Del.quantity cm3/
1000H.: 7,0...9,0
Dispersion cm3/ : 2,5
1000H.: (3,0)
Residual-Delivery Setting
Speed 1/min: 550
Del.quantity cm3/
1000H.: 2,5...3,5

Full-load speed regulation:

Speed 1/min: 2440
Del.quantity cm3/
1000H.: 20,0...26,0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm3/1000H.: 64,0

Load-dependent start of delivery:

Speed 1/min: 1250

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 800
TD travel mm: 1,5...2,3
mm: (1,2...2,6)

2nd speed 1/min: 1250
TD travel mm: 4,0...4,4
mm: (3,5...4,9)

3rd speed 1/min: 2000
TD travel mm: 7,6...8,4
mm: (7,3...8,7)

Supply-pump pressure characteristic:

1st speed 1/min: 800
Supply-pump
pressure bar: 3,0...3,6
2nd speed 1/min: 1250
Supply-pump
pressure bar: 4,2...4,8
3rd speed 1/min: 2000

Supply-pump
pressure bar: 6,3...6,9

Overflow quantity at overflow valve:

1st speed 1/min: 500
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 2250
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2650
Del. quantity cm³/: 0,0...7,0
1000H.: -
2nd speed 1/min: 2540
Del. quantity cm³/: 10,0...16,0
1000H.: (9,0...17,0)
3rd speed 1/min: 2440
Del. quantity cm³/: 20,0...26,0
1000H.: (19,0...27,0)
4th speed 1/min: 2250
Del. quantity cm³/: 29,2...31,2
1000H.: (28,2...32,2)
5th speed 1/min: 2000
Del. quantity cm³/: 30,1...32,1
1000H.: (29,1...33,1)
6th speed 1/min: 1250
Del. quantity cm³/: 28,0...29,0
1000H.: (26,5...30,5)
7th speed 1/min: 800
Del. quantity cm³/: 28,2...30,8
1000H.: (27,5...31,5)
8th speed 1/min: 500
Del. quantity cm³/: 28,5...31,5
1000H.: (28,0...32,0)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 2300
ELAB volt: -
Del. quantity cm³/: -
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
Del. quantity cm³/: 7,0...9,0
1000H.: (4,0...12,0)

High Idle:

Speed 1/min: 470
Del. quantity cm³/: 7,0...9,0
1000H.: (4,0...12,0)

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Residual:

Speed 1/min: 550
Del. quantity : 2,5...3,5
1000H.: (1,0...5,0)

Arrangement of drivers on engine-
speed lever for exhaust-gas-
recirculation valve linkage (guage)

1st speed 1/min: 1125
Del. quantity cm³/: 17,0...19,0
1000H.: (15,5...20,5)

Automatic starting fuel delivery:

1st speed 1/min: 200
Del. quantity cm³/: -
ind. 1000H: 20,0

2nd speed 1/min: 300
Del. quantity cm³/: -
max. 1000H : 45,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation
K mm : 3,2...3,4
KF mm : 5,7...6,0
MS mm : 1,3...1,55
XK mm : 17,0...19,0
XL mm : 14,2...17,6

Remarks:

For adjustment of switching point
(EGR valve), include 10.8 mm spacer
at third fuel-delivery stop.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA 1,9 H
Edition : 20.07.89
replaces : 16.11.87
Calibrating oil : ISO 4113

Injection pump : VE 4/ 9F2100 L184-1
Type number : 0 460 494 236

Customer-specific information
Customer : FIAT

Engine : M707 CT 19.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
pressure bar : 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6
x Wall thickness : 2
x Length mm : 450

Start of delivery
Prestroke mm : -
(from BDC) : -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500
Charge press. hPa: 800
Setting value mm: 5,4...5,8

Supply-pump pressure:

Speed 1/min: 1500
Charge press. hPa: 800
Setting value bar: 6,1...6,7

Full-load del. with charge press.:

Speed 1/min: 1500
Charge press. hPa: 800
Del. quantity cm³/
1000H.: 46,3...47,3
Dispersion cm³/
1000H.: 2,5

Full-load del. w/out charge press.:

Speed 1/min : 800
Del. quantity cm³/
1000H.: 35,6...36,6

Low-idle speed regulation:

Speed 1/min: 350
Charge press. hPa: -
Del. quantity cm³/
1000H.: 8,0...12,0
Dispersion cm³/
1000H.: 2,5

Full-load speed regulation:

Speed 1/min: 2400
Charge press. hPa: 800
Del. quantity cm³/
1000H.: 15,0...21,0

Start:

Speed 1/min: 100
Charge press. hPa: -
Del. quantity : -
mind cm³/1000H.: 57,0

Load-dependent start of delivery:

Speed 1/min: 1500
Charge press. hPa: -

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 800
Charge press. hPa: 800
TD travel mm: 1,7...2,5
mm: (1,4...2,8)
2nd speed 1/min: 1500
Charge press. hPa: 800
TD travel mm: 5,4...5,8
mm: (4,9...6,3)
3rd speed 1/min: 2000
Charge press. hPa: 800

TD travel mm: 7,6...8,4
mm: (7,3...8,7)

Supply-pump pressure characteristic:

1st speed 1/min: 400
Charge press. hPa: 800
Supply-pump pressure bar: 2,8...3,4
2nd speed 1/min: 800
Charge press. hPa: 800
Supply-pump pressure bar: 4,1...4,7
3rd speed 1/min: 1500
Charge press. hPa: 800
Supply-pump pressure bar: 6,1...6,7
4th speed 1/min: 2000
Charge press. hPa: 800
Supply-pump pressure bar: 7,5...8,1

Overflow quantity at overflow valve:

1st speed 1/min: 600
Charge press. hPa: -
Overflow quantity cm³/10s: 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 2100
Charge press. hPa: 800
Overflow quantity cm³/10s: 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 800*
Charge-air pressure-setting point hPa: 450
LDA stroke mm: 4,5
Del. quantity cm³/1000H.: 45,0...46,0
(43,0...48,0)
2nd speed 1/min: 2550
Charge press. hPa: 800
Del. quantity cm³/1000H.: 0,0...5,0
-
3rd speed 1/min: 2400
Charge press. hPa: 800
Del. quantity cm³/1000H.: 15,0...21,0
(14,0...22,0)
4th speed 1/min: 2300
Charge press. hPa: 800
Del. quantity cm³/1000H.: 29,0...36,0
-
5th speed 1/min: 2100
Charge press. hPa: 800
Del. quantity cm³/1000H.: 46,5...49,5
(45,8...50,2)
6th speed 1/min: 1500
Charge press. hPa: 800

Del. quantity cm³/1000H.: 46,3...47,3
(44,8...48,8)
7th speed 1/min: 800
Charge press. hPa: -
Del. quantity cm³/1000H.: 35,6...36,6
(33,6...38,6)
8th speed 1/min: 600
Charge press. hPa: -
Del. quantity cm³/1000H.: 37,3...39,3
-

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 350
ELAB volt: -
Del. quantity cm³/1000H.: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 350
Del. quantity cm³/1000H.: 8,0...12,0
(6,0...14,0)
2nd speed 1/min: 400
Del. quantity cm³/1000H.: 2,0...8,0
(1,0...9,0)
3rd speed 1/min: 500
Del. quantity cm³/1000H.: 0,0...1,6
-

Automatic starting fuel delivery:

1st speed 1/min: 300
Del. quantity cm³/ind. 1000H.: 55,0
-
2nd speed 1/min: 500
Del. quantity cm³/max. 1000H.: 45,0
-

Shutoff electromagnet:

Cut-in min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation mm :
K : 3,2...3,4
KF : 5,6...6,0
MS : 1,3...1,7
SVS max. : 5,4
XK : 20,0...22,0
XL : 12,3...15,7

Remarks:

* Correction at adjusting nut (46)

Microswitch setting instructions

Microswitch is switched on between 0°
idle and 12°...13° control lever angle
(8.5...9.0 mm control lever travel).

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : OPE 1,5 B
Edition : 18.07.89
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 4/10F2300 R365
Type number : 0 460 620 004

Customer-specific information
Customer : ISUZU

Engine : 4 EE1-TC

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
pressure bar : 130...133

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 450

Start of delivery
Prestroke mm : -
(from BDC) : -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1250
Charge press. hPa: 1000
Setting value mm: 2,9...3,3

Supply-pump pressure:

Speed 1/min: 1250
Charge press. hPa: 1000
Setting value bar: 3,9...4,5

Full-load del. with charge press.:

Speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm³/
1000H.: 52,5...53,5

Full-load del. w/out charge press.:

Speed 1/min: 550
Del. quantity cm³/
1000H.: 34,7...38,7

Low-idle speed regulation:

Speed 1/min: 415
Charge press. hPa: -
Del. quantity cm³/
1000H.: 9,5...13,5

Full-load speed regulation:

Speed 1/min: 2600
Charge press. hPa: 1000
Del. quantity cm³/
1000H.: 18,4...24,4

Start:

Speed 1/min: 100
Charge press. hPa: -
Del. quantity : -
mind cm³/1000H.: 44,0

Load-dependent start of delivery:

Speed 1/min: 1250
Charge press. hPa: 1000

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600
Charge press. hPa: 1000
TD travel mm: 0,3...1,1
mm: (0,0...1,4)

2nd speed 1/min: 1250
Charge press. hPa: 1000
TD travel mm: 2,9...3,3
mm: (2,4...3,8)

3rd speed 1/min: 2000
Charge press. hPa: 1000
TD travel mm: 5,8...6,6
mm: (5,5...6,9)

4th speed 1/min: 2250
Charge press. hPa: 1000

TD travel mm: 6,8...7,6
mm: (6,5...7,9)

Supply-pump pressure characteristic:

1st speed 1/min: 600
Charge press. hPa: 1000
Supply-pump pressure bar: 2,1...2,7
2nd speed 1/min: 1250
Charge press. hPa: 1000
Supply-pump pressure bar: 3,9...4,5
3rd speed 1/min: 2250
Charge press. hPa: 1000
Supply-pump pressure bar: 6,5...7,1

Overflow quantity at overflow valve:

1st speed 1/min: 1250
Charge press. hPa: 1000
Overflow : 83...127
quantity cm³/10s: (68...142)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1000
Charge-air pressure-setting point hPa: 410
Del. quantity cm³/: 47,8...48,5
1000H.: (45,8...50,8)
2nd speed 1/min: 2750
Charge press. hPa: 1000
Del. quantity cm³/: 0,0...5,0
1000H.: -
3rd speed 1/min: 2600
Charge press. hPa: 1000
Del. quantity cm³/: 18,4...24,4
1000H.: (16,9...25,9)
4th speed 1/min: 2400
Charge press. hPa: 1000
Del. quantity cm³/: 41,0...49,0
1000H.: (40,0...50,0)
5th speed 1/min: 2300
Charge press. hPa: 1000
Del. quantity cm³/: 49,5...52,5
1000H.: (48,7...53,3)
6th speed 1/min: 2200
Charge press. hPa: 1000
Del. quantity cm³/: 50,0...53,0
1000H.: (49,2...53,8)
7th speed 1/min: 1250
Charge press. hPa: -
Del. quantity cm³/: 31,7...35,7
1000H.: (31,2...36,2)
8th speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm³/: 52,5...53,5
1000H.: (50,7...55,3)

9th speed 1/min: 1000
Charge press. hPa: 410
Del. quantity cm³/: 47,8...48,8
1000H.: (45,8...50,8)
10th speed 1/min: 550
Charge press. hPa: -
Del. quantity cm³/: 34,7...38,7
1000H.: (33,7...39,7)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 415
ELAB volt: -
Del. quantity cm³/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 415
Del. quantity cm³/: 9,5...13,5
1000H.: (7,5...15,5)
2nd speed 1/min: 550
Del. quantity cm³/: 0,0...5,0
1000H.: -

Automatic starting fuel delivery:

2nd speed 1/min: 400
Del. quantity cm³/: -
max. 1000H.: 52,5

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

MS mm : 0,8...1,0

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 2,0 r6
Edition : 03.07.89
Replaces : -
Test oil : ISO-4113
Combination no. : 0 400 074 897
Injection pump
Pump designation : PES4M55C32ORS172
EP type number : 0 410 054 958
Governor
Governor design. : RSF360/2300M60-25
Governor no. : 0 420 021 132

Customer-spec. information
Customer : DB-PKW

Engine : 0M601-Abgl. MJ90

1st version kW : 53.0

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 469 990 351

Inlet press., bar : 1.00

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure, bar : 30...32

Prestroke mm : 1.70...1.80
: (1.65...1.85)

Rack travel in mm : 20.00...22.00
Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.00 (1.00)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 12.10...12.20

Del. quantity cm³/ : 3.0...3.1

100 s : (2.9...3.2)

Spread cm³ : 0.2

100 s : (0.3)

2nd speed rpm : 335.0

Rack travel in mm : 6.5...6.7

Del. quantity cm³/ : 0.5...0.6

100 s : (0.4...0.9)

Spread cm³ : 0.1

100 s : (0.1)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h : 1100

Del. quantity : 30.5...31.5

1000 : (29.5...32.5)

Spread cm³ : 2.50

1000 : (3.00)

RATED SPEED

1st version

Control lever
position degrees : 50...0

3rd rack travel in : 8,0...8,4

Speed rpm : 2500

4th rack travel in : 2950

Speed rpm : 0.00...1.00

SET IDLE CONTROL LEVER POSITION

Speed rpm : 1000

Rack travel in mm : 1,4...1,5

LOW IDLE 1

Control lever
position degrees : 12...16

Setting point w/out bumper spring

Speed rpm : 335
Rack travel in mm : 6.6

Testing:

Speed rpm : 250
Minimum rack travel: 9.00
Speed rpm : 335
Rack travel in mm : 6.50...6.70
Rack travel in mm : 2.50
Speed rpm : 630...730
Speed rpm : 1000
Maximum rack travel: 1.50

SET IDLE AUXILIARY SPRING

Speed rpm : 400
Rack travel in mm : 5.2...5.4
 : (5,1...5,5)

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 12.10...12.20
2nd speed rpm : 1800
Rack travel in m: 11.50...11.70
3rd speed rpm : 2200
Rack travel in m: 10.90...11.10

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 1000
Pressure hPa : 950
Rack travel mm : 0.00...0.20

Measurement

Speed 1/min : 1000

1st pressure hPa : 900
Rack travel in m: 0.50...0.70
2nd pressure hPa : 750
Rack travel in m: 1.80...2.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1100
Speed rpm : 1800
Del. quantity cm³/ : 33.5...35.0
 1000 s: (32.5...36.0)
Spread cm³ : 2.50
 1000 s: (3.0)
Aneroid pressure h: 1100
Speed rpm : 2200
Del. quantity cm³/ : 31.0...33.0
 1000 s: (30.0...34.0)

Spread cm³ : 2.50
 1000 s: (3.00)

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 52.0...0.0
 1000 s: (52.0...0.0)
Rack travel in mm : 20.10...0.00

HIGH IDLE

1st version

Aneroid pressure h: 1100
Speed rpm : 2500
Rack travel in mm : 8.00...8.40
Del. quantity cm³/ : 16.0...20.0
 1000 s: (15.0...21.0)
Spread cm³ : 2.50
 1000 s: (3.00)

LOW IDLE

Speed rpm : 335
Rack travel in mm : 6.50...6.70
Del. quantity cm³/ : 5.0...6.0
 1000 s: (4.5...9.0)
Spread cm³ : 1.00
 1000 s: (1.50)

SETTING/TESTING ELECTRONIC IDLE REGULATION (ELR)

Control lever at idle stop

Speed rpm : 360
Rack travel in mm : (13,0...14,4)
Del. quantity cm³/ : -
 1000 s: (29,0...37,0)

Current A : 1,8

Control lever at full-load stop

Speed rpm : 2950
Rack travel in mm : 0,0...1,0
Current

short-duration A : 3,0

Starting test

Speed rpm : 100
Del. quantity cm³/ : -
min. 1000 s: 52,0

Remarks:

Pin projection = 16.60...16.70 mm

CHECKING THE IDLE-SPEED AUXILIARY SPRING CUTOFF

-Control-lever position 49°, max.
0.2 mm control-rod travel deduction

allowable after switchover point (of starting cam) up to 1000 1/min.
Control-lever position 46.5° ,
control-rod travel deduction must be greater than 0.2 mm after switchover point (of starting cam).

TESTING PNEUMATIC SHUTOFF DEVICE

-Control lever at idle stop.
With $n = 335$ 1/min. and $p_u = 450$ mbar,
control rod must move quickly to control-rod travel = 0 mm

Difference in start of delivery between max. and min. value = max. 1° angular displacement of cam

Start-of-delivery sensor system:
adjustment and blocking with device
KDEP 1077 = $17.3^\circ \dots 17.7^\circ$
($17.2 \dots 17.8^\circ$) angular displacement of cam following start of delivery of cylinder no. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 2,0 r7
Edition : 03.07.89
Replaces : -
Test oil : ISO-4113
Combination no. : 0 400 074 898
Injection pump
Pump designation : PES4M55C32ORS172
EP type number : 0 410 054 958
Governor
Governor design. : RSF375/2300M56-10
Governor no. : 0 420 021 130

Customer-spec. information
Customer : DB-PKW

Engine : OM601-Abgl. MJ90

1st version kW : 53.0

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 469 990 351

Inlet press., bar : 1.00

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 1.70...1.80
: (1.65...1.85)

Rack travel in mm : 20.00...22.00
Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.00 (1.00)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 12.10...12.20

Del. quantity cm³/ : 3.0...3.1

100 s : (2.9...3.2)

Spread cm³ : 0.2

100 s : (0.3)

2nd speed rpm : 375.0

Rack travel in mm : 6.4...6.6

Del. quantity cm³/ : 0.5...0.6

100 s : (0.4...0.9)

Spread cm³ : 0.1

100 s : (0.1)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1100

Del. quantity : 30.5...31.5

1000 : (29.5...32.5)

Spread cm³ : 2.50

1000 : (3.00)

RATED SPEED

1st version

Control lever

position degrees: 50...0

3rd rack travel in: 8,0...8,4

Speed rpm : 2500

4th rack travel in: 2950

Speed rpm : 0.00...1.00

SET IDLE CONTROL LEVER POSITION

Speed rpm : 1000

Rack travel in mm : 1,4...1,5

LOW IDLE 1

Control lever

position degrees: 12...16

Setting point w/out bumper spring

Speed rpm : 375
Rack travel in mm : 6.5

Testing:

Speed rpm : 250
Minimum rack travel: 11.00
Speed rpm : 375
Rack travel in mm : 6.40...6.60
Rack travel in mm : 2.50
Speed rpm : 650...750
Speed rpm : 1000
Maximum rack travel: 1.50

SET IDLE AUXILIARY SPRING

Speed rpm : 400
Rack travel in mm : 5,5...5,7
 : (5,4...5,8)

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 12.10...12.20
2nd speed rpm : 1800
Rack travel in m: 11.50...11.70
3rd speed rpm : 2200
Rack travel in m: 10.90...11.10

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 1000
Pressure hPa : 950
Rack travel mm : 0.00...0.20

Measurement

Speed 1/min : 1000

1st pressure hPa : 900
Rack travel in m: 0.50...0.70
2nd pressure hPa : 750
Rack travel in m: 1.80...2.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1100
Speed rpm : 1800
Del. quantity cm³/ : 33.5...35.0
 1000 s: (32.5...36.0)
Spread cm³ : 2.50
 1000 s: (3.)
Aneroid pressure h: 1100
Speed rpm : 2200
Del. quantity cm³/ : 31.0...33.0
 1000 s: (30.0...34.0)

Spread cm³ : 2.50
1000 s: (3.00)

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 52.0...0.0
 1000 s: (52.0...0.0)
Rack travel in mm : 20.10...0.00

HIGH IDLE

1st version
Aneroid pressure h: 1100
Speed rpm : 2500
Rack travel in mm : 8.00...8.40
Del. quantity cm³/ : 16.0...20.0
 1000 s: (15.0...21.0)
Spread cm³ : 2.50
 1000 s: (3.00)

LOW IDLE

Speed rpm : 375
Rack travel in mm : 6.40...6.60
Del. quantity cm³/ : 5.0...6.0
 1000 s: (4.5...9.0)
Spread cm³ : 1.00
 1000 s: (1.50)

SETTING PNEUMATIC FAST IDLE (ELA)

Speed rpm : 425
Rack travel in mm : (7,8...9,4)
Del. quantity cm³/ : -
 1000 s: (10,5...18,5)
Vacuum hPa : 400

Remarks:

Pin projection = 16.60...16.70 mm

CHECKING THE IDLE-SPEED AUXILIARY SPRING CUTOFF

-Control-lever position 49°, max.
0.2 mm control-rod travel deduction
allowable after switchover point (of
starting cam) up to 1000 1/min.
Control-lever position 46.5°,
control-rod travel deduction must be
greater than 0.2 mm after switchover
point (of starting cam).

TESTING PNEUMATIC SHUTOFF DEVICE

-Control lever at idle stop.
With $n = 375$ 1/min. and $p_u = 450$ mbar,
control rod must move quickly to
control-rod travel = 0 mm

Difference in start of delivery between
max. and min. value = max. 1° angular
displacement of cam

Start-of-delivery sensor system:
adjustment and blocking with device
KDEP 1077 = $17.3^\circ \dots 17.7^\circ$
($17.2 \dots 17.8^\circ$) angular displacement of
cam following start of delivery of
cylinder no. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : 2,3 d
Edition : 17.07.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 400 074 908

Injection pump
Pump designation : PES4M55C32ORS167
EP type number : 0 410 054 960
Governor
Governor design. : RSF375/2000M69
Governor no. : 0 420 021 100

Customer-spec. information
Customer : DB

Engine : 0M601-2.31

1st version kW : 60.0

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 469 990 351

Inlet press., bar : 1.00

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 2.00...2.10
 : (1.95...2.15)
Rack travel in mm : 20.00...22.00
Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.00 (1.00)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 12.80...12.90

Del. quantity cm³/ : 4.0...4.1

100 s : (3.9...4.2)

Spread cm³ : 0.2

100 s : (0.3)

2nd speed rpm : 375.0

Rack travel in mm : 5.0...5.2

Del. quantity cm³/ : 0.5...0.6

100 s : (0.4...0.9)

Spread cm³ : 0.1

100 s : (0.1)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1100

Del. quantity : 40.0...41.0

1000 : (39.0...42.0)

Spread cm³ : 2.50

1000 : (3.00)

RATED SPEED

1st version

Control lever

position degrees: 50...0

3rd rack travel in: 7,0...7,5

Speed rpm : 2200

4th rack travel in: 2500

Speed rpm : 0.00...1.00

SET IDLE CONTROL LEVER POSITION

Speed rpm : 1000

Rack travel in mm : 1,4...1,5

LOW IDLE 1

Control lever

position degrees: 11...15

Setting point w/out bumper spring

Speed rpm : 375
Rack travel in mm : 5.1

Testing:

Speed rpm : 250
Minimum rack travel: 10.20
Speed rpm : 375
Rack travel in mm : 5.00...5.20
Rack travel in mm : 3.00
Speed rpm : 450...550
Speed rpm : 1000
Maximum rack travel: 1.50

SET IDLE AUXILIARY SPRING

Speed rpm : 420
Rack travel in mm : 3.9...4.1
: (3.8...4.2)

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1000
Rack travel in m: 12.80...12.90
2nd speed rpm : 1400
Rack travel in m: 12.20...12.50
3rd speed rpm : 2000
Rack travel in m: 11.40...11.70
4th speed rpm : 500
Rack travel in m: 12.10...12.40
5th speed rpm : 800
Rack travel in m: 12.40...12.70

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 1000
Pressure hPa : 950
Rack travel mm : 0.00...0.20

Measurement

Speed 1/min : 1000

1st pressure hPa : 900
Rack travel in m: 0.50...0.70
2nd pressure hPa : 750
Rack travel in m: 1.80...2.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1100
Speed rpm : 1400
Del. quantity cm³/ : 39.5...41.0
1000 s: (38.5...42.0)
Spread cm³ : 2.50
1000 s: (3.00)
Aneroid pressure h: 1100

Speed rpm : 2000
Del. quantity cm³/ : 39.5...41.5
1000 s: (38.5...42.5)
Spread cm³ : 2.50
1000 s: (3.00)
Aneroid pressure h: 1100
Speed rpm : 500
Del. quantity cm³/ : 34.5...36.0
1000 s: (33.5...37.0)
Spread cm³ : 2.50
1000 s: (3.00)
Aneroid pressure h: 1100
Speed rpm : 800
Del. quantity cm³/ : 37.5...39.0
1000 s: (36.5...40.0)
Spread cm³ : 2.50
1000 s: (3.00)

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 52.0...0.0
1000 s: (52.0...0.0)
Rack travel in mm : 20.10...0.00

HIGH IDLE

1st version

Aneroid pressure h: 1100
Speed rpm : 2200
Rack travel in mm : 7.00...7.50
Del. quantity cm³/ : 22.0...26.0
1000 s: (21.0...27.0)
Spread cm³ : 2.50
1000 s: (3.00)

LOW IDLE

Speed rpm : 375
Rack travel in mm : 5.00...5.20
Del. quantity cm³/ : 5.0...6.0
1000 s: (4.5...9.0)
Spread cm³ : 1.00
1000 s: (1.50)

SETTING PNEUMATIC FAST IDLE
(ELA)

Speed rpm : 425
Rack travel in mm : 6.4...8.0
Del. quantity cm³/ : -
1000 s: (11.0...19.0)
Vacuum hPa : 400

Remarks:

Pin projection = 16.60...16.70 mm

TESTING PNEUMATIC SHUTOFF DEVICE

-Control lever at idle stop.

With $n = 375$ 1/min. and $p_u = 450$ mbar,
control rod must move quickly to
control-rod travel = 0 mm

Start-of-delivery sensor system:
adjustment and blocking with device

KDEP 1077 = $15.3^\circ \dots 15.7^\circ$
($15.2 \dots 15.8^\circ$) angular displacement of
cam following start of delivery of
cylinder no. 1.

Difference in start of delivery between
max. and min. value = max. 1° angular
displacement of cam

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 2.5 C6
 Edition : 03.07.89
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 400 075 935

Injection pump
 Pump designation : PESSM55C32ORS158-1
 EP type number : 0 410 055 979
 Governor
 Governor design. : RSF340/2300M65-4
 Governor no. : 0 420 021 144

Customer-spec. information
 Customer : DB-PKW

Engine : OM602A-ECE

1st version kW : 92.0

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 469 990 351

Inlet press., bar : 1.00

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 2.20...2.30
 : (2.15...2.35)

Rack travel in mm : 20.00...22.00

Firing order : 1- 2- 4- 5- 3

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.00 (1.00)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 13.90...14.00

Del. quantity cm³/ : 5.1...5.2

100 s : (5.0...5.3)

Spread cm³ : 0.2

100 s : (0.3)

2nd speed rpm : 315.0

Rack travel in mm : 5.4...5.6

Del. quantity cm³/ : 0.5...0.6

100 s : (0.4...0.9)

Spread cm³ : 0.1

100 s : (0.1)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1850

Del. quantity : 51.0...52.0

1000 : (50.0...53.0)

Spread cm³ : 2.50

1000 : (3.00)

RATED SPEED

1st version

Control lever

position degrees: 50...0

3rd rack travel in: 8.1...8.5

Speed rpm : 2500

4th rack travel in: 2950

Speed rpm : 0.00...1.00

SET IDLE CONTROL LEVER POSITION

Speed rpm : 1000

Rack travel in mm : 1.7...1.8

LOW IDLE 1

Control lever

position degrees: 8...12

Setting point w/out bumper spring

Speed rpm : 315
Rack travel in mm : 5.5

Testing:

Speed rpm : 220
Minimum rack trave: 8.00
Speed rpm : 315
Rack travel in mm : 5.40...5.60
Rack travel in mm : 2.50
Speed rpm : 540...640
Speed rpm : 1000
Maximum rack trave: 1.80

SET IDLE AUXILIARY SPRING

Speed rpm : 380
Rack travel in mm : 4.2...4.4
: (4.1...4.5)

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 13.90...14.00
2nd speed rpm : 1600
Rack travel in m: 13.20...13.40
3rd speed rpm : 2200
Rack travel in m: 12.30...12.50

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 1000
Pressure hPa : 1600
Rack travel mm : 0.50...0.90

Measurement

Speed 1/min : 1000
1st pressure hPa : 1050
Rack travel in m: 3.90...4.10
2nd pressure hPa : 750
Rack travel in m: 5.80...6.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1850
Speed rpm : 1600
Del. quantity cm³/ : 50.0...51.5
1000 s: (49.0...52.5)
Spread cm³ : 2.50
1000 s: (3.0)
Aneroid pressure h: 1850
Speed rpm : 2200
Del. quantity cm³/ : 48.5...50.5
1000 s: (47.5...51.5)

Spread cm³ : 2.50
1000 s: (3.00)
Aneroid pressure h: 1050
Speed rpm : 1000
Del. quantity cm³/ : 33.0...34.0
1000 s: (32.0...35.0)
Spread cm³ : 2.50
1000 s: (3.00)

INTERMEDIATE RATED SPEED

Control lever
position degrees: 30...0
Rack travel in mm : 9.50
Speed rpm : 0...1000

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 52.0...0.0
1000 s: (52.0...0.0)
Rack travel in mm : 20.10...0.00

HIGH IDLE

1st version
Aneroid pressure h: 1850
Speed rpm : 2500
Rack travel in mm : 8.10...8.50
Del. quantity cm³/ : 29.0...33.0
1000 s: (28.0...34.0)
Spread cm³ : 2.50
1000 s: (3.00)

LOW IDLE

Speed rpm : 315
Rack travel in mm : 5.40...5.60
Del. quantity cm³/ : 5.5...6.5
1000 s: (4.5...9.0)
Spread cm³ : 1.00
1000 s: (1.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 1 g 28
Edition : 27.06.88
Replaces : 26.06.87
Test oil : ISO-4113

Combination no. : 0 400 464 133

Injection pump
Pump designation : PES4A80D410/3RS1349
EP type number : 0 410 484 021
Governor
Governor design. : RSV325...1175A8C2163
-4L
Governor no. : 0 420 232 476

Customer-spec. information
Customer : KHD

Engine : F4L912

1st version kW : 51.0
Rated speed : 2350

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 1.90...2.00
: (1.85...2.05)

Rack travel in mm : 9.00...12.00

Phasing : 0-90-180-270
Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1175

Rack travel in mm : 10.10...10.20

Del. quantity cm³/ : 5.7...5.8

100 s : (5.6...6.0)

Spread cm³ : 0.25

100 s : (0.40)

2nd speed rpm : 325
Rack travel in mm : 5.90...6.10

Del. quantity cm³/ : 1.0...1.6
100 s : (0.8...1.7)

Spread cm³ : 0.20
100 s : (0.30)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1175

Del. quantity : 57.5...58.5

1000 : (56.0...60.0)

Spread cm³ : 2.5

1000 : (4.0)

RATED SPEED

1st version

Control lever

position degrees: 49...57

Testing:

1st rack travel in: 9.10

Speed rpm : 1215...1225

2nd rack travel in: 4.00

Speed rpm : 1240...1270

3rd rack travel in: 4.00

Speed rpm : 1255...1285

4th rack travel in: 1415

Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 13...17

Setting point w/out bumper spring

Speed rpm : 325

Rack travel in mm : 5.50

Testing:

Speed rpm : 100

Minimum rack trave: 19.50

Speed rpm : 325

Rack travel in mm : 5.90...6.10

Rack travel in mm : 2.00

Speed rpm : 460...520

TORQUE CONTROL

Dimension a mm : 0.85

Torque control curve - 1st version

1st speed rpm : 1175

Rack travel in m: 10.10...10.20

2nd speed rpm : 500

Rack travel in m: 11.00...11.10

3rd speed rpm : 990

Rack travel in m: 10.50...10.70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800

Del. quantity cm³/ : 55.0...57.0

1000 s: (53.0...59.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.10

Speed rpm : 1215...1225

STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm³/ : 135.0...145.0

1000 s: (132.0...148.0)

Rack travel in mm : 19.50...21.00

Remarks:

: TKS2.70

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : LAB 4,6 a
Edition : 23.08.89
Replaces : -
Test oil : ISO-4113
Combination no. : 0 400 474 134
Injection pump
Pump designation : PES4A85D410RS1232
Governor
Governor design. : RSV250...1000A1B1024
L

Customer-spec. information
Customer : LAMBORGHINI

Engine : FL 1104/2

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Inlet press., bar : 1.0
Test nozzle holder
assembly : 0 681 343 009
Opening
pressure, bar : 172...175
Test lines : 1 680 750 014
Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600
(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 3,70...3,75
 : (3,65...3,80)
Rack travel in mm : 21,00
Firing order : 1-3-4-2

Phasing : 0-90-180-270
Tolerance + - ° : 0,50 (0,75)

BEGINNING OF DELIVERY DIFFERENCE

F22

betw. rack trav. m: 10,20
& maximum rack tra: 21,00
Difference ° CS : 4,5...6,0

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 6,00

Del. quantity cm³/ : 2,4...3,6

100 s: (-)

2nd speed rpm : 1000
Rack travel in mm : 9,00
Del. quantity cm³/ : 5,9...6,4
100 s: (-)
3rd speed rpm : 200
Rack travel in mm : 9,00
Del. quantity cm³/ : 3,6...4,4
100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1000
Del. quantity : 78,5...80,5
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 51...59

Testing:
1st rack travel in: 9,50
Speed rpm : 1055...1085
2nd rack travel in: 4,00
Speed rpm : 1105...1135
4th rack travel in: 1220
Speed rpm : 0,00...1,00

LOW IDLE 1

Control lever
position degrees: 21...29
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 6,00

Testing:

Speed rpm : 100
Minimum rack trave: 19,00
Speed rpm : 250
Rack travel in mm : 5,70...6,30
Speed rpm : 440
Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 9,00
2nd speed rpm : 450
Rack travel in m: 9,00
3rd speed rpm : 300
Rack travel in m: 10,20...10,80

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 1020

Remarks:

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 8,7 m
Edition : 09.08.89
Replaces : -
Test oil : ISO-4113
Combination no. : 0 400 646 094
Injection pump
Pump designation : PE6A90C410RS2124
Governor
Governor design. : RQ300/1125AB713

Customer-spec. information
Customer : MERCEDES-BENZ

Engine : OM 360

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Inlet press., bar : 1.0

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _ _ _

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
 : (2,10...2,30)
Rack travel in mm : 9,00...12,00
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00

Del. quantity cm³/ : 6,4...6,9

100 s : (-)

Spread cm³ : 0,4

100 s : (-)

2nd speed rpm : 1000

Rack travel in mm : 15,00

Del. quantity cm³/ : 13,8...15,3

100 s : (-)

3rd speed rpm : 200

Rack travel in mm : 9,00

Del. quantity cm³/ : 3,7...4,9

100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1050

Rack travel in mm : 15.10...15.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del. quantity : 83,5...85,5

1000 : (-)

RATED SPEED

1st version

Setting point:

Speed rpm : 1050

Rack travel in mm : 15,4

Testing:

1st rack travel in: 15,20

Speed rpm : 1115...1145

2nd rack travel in: 10,50

Speed rpm : 1165...1195

3rd rack travel in: 0.00...8.00

Speed rpm : 1230

4th rack travel in: 1310

Speed rpm : <0.00

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 570

Rack travel in mm : <0,00

Testing:

Speed rpm : 200

Minimum rack trave: 7.80

Speed rpm : 300
Rack travel in mm : 4,70...7,10
Rack travel in mm : 2,25
Speed rpm : 390...410
Speed rpm : 470
Maximum rack travel: 0,01

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 600
Rack travel in m: 15,80...16,00
2nd speed rpm : 700
Rack travel in m: 15,40...15,60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700
Del. quantity cm³/ : 86,0...89,0
1000 s: (-)
Speed rpm : 500
Del. quantity cm³/ : 76,5...79,5
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 450

LOW IDLE

Speed rpm : 100
Rack travel in mm : 15,25

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 8.3 n 5
 Edition : 27.06.88
 Replaces : 12.09.86
 Test oil : ISO-4113

Combination no. : 0 400 676 175

Injection pump
 Pump designation : PE6A95D41ORS2575
 EP type number : 0 410 696 984
 Governor
 Governor design. : RSV250...1200A5C2198
 -1L
 Governor no. : 0 420 232 442

Customer-spec. information
 Customer : DAF

Engine : DH825

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _ _ _

BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 2.00...2.10
 : (1.95...2.15)

Rack travel in mm : 7.50...10.50

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50
 & maximum rack tra: 21.00
 Difference ° CS : 3.00...4.00

BASIC SETTING

1st speed rpm : 1200

 Rack travel in mm : 10.40...10.50

 Del. quantity cm³/ : 7.3...7.5

 100 s : (7.1...7.7)

 Spread cm³ : 0.35

 100 s : (0.60)

 2nd speed rpm : 250
 Rack travel in mm : 6.10...6.30
 Del. quantity cm³/ : 0.7...1.1
 100 s : (0.4...1.3)
 Spread cm³ : 0.35
 100 s : 0.55

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1200
 Del. quantity : 73.0...75.0
 1000 : (71.0...77.0)
 Spread cm³ : 3.5
 1000 : (6.0)

RATED SPEED

1st version
 Control lever
 position degrees: 59...67

Testing:
 1st rack travel in: 9.40

Speed rpm : 1240...1250
2nd rack travel in: 4.00
Speed rpm : 1300...1330
3rd rack travel in: 4.00
Speed rpm : 1340...1370
4th rack travel in: 1505
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 24...32
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.70
Speed rpm : 250
Rack travel in mm : 6.10...6.30
Rack travel in mm : 2.00
Speed rpm : 655...715

TORQUE CONTROL

Dimension a mm : 0.80
Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 10.40...10.50
2nd speed rpm : 500
Rack travel in m: 11.20...11.30
3rd speed rpm : 800
Rack travel in m: 11.10...11.20
4th speed rpm : 940
Rack travel in m: 10.70...11.00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800
Del. quantity cm³/ : 74.5...77.5
1000 s: (72.0...80.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.40
Speed rpm : 1240...1250

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 125.0...140.0
1000 s: (122.0...143.0)
Rack travel in mm : 19.50...21.00

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 5,7 N 11
 Edition : 21.1.88
 Replaces : 12.9.86
 Test oil : IS0-4113

Combination no. : 0 400 846 336

Injection pump
 Pump designation : PES6A90D41ORS2293W
 EP type number : 0 410 896 049
 Governor
 Governor design. : RQV300...1425AB740L
 Governor no. : 0 420 212 037

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM 352A

1st version kW : 115.0
 Rated speed : 2850

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values ____

BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 2.15...2.25
 : (2.10...2.30)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1400
 Rack travel in mm : 10.90...11.00

Del. quantity cm³/ : 7.1...7.2

100 s : (6.9...7.4)

Spread cm³ : 0.30

100 s : (0.45)

2nd speed rpm : 300
 Rack travel in mm : 7.50...7.70
 Del. quantity cm³/ : 0.9...1.5
 100 s : (0.7...1.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 0.70...2.20
 2nd speed rpm : 550
 travel mm : 2.70...3.00
 3rd speed rpm : 775
 travel mm : 4.10...4.60
 4th speed rpm : 950
 travel mm : 5.20...5.50
 5th speed rpm : 1460
 travel mm : 8.40...8.60

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1420
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1400
 Del. quantity : 71.5...72.5
 1000 : (69.5...74.5)
 Spread cm³ : 3.0
 1000 : (4.5)

RATED SPEED

1st version
Control lever
position degrees: 55...63

Testing:
1st rack travel in: 9.90
Speed rpm : 1455...1465
2nd rack travel in: 4.00
Speed rpm : 1560...1590
4th rack travel in: 1700
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 10...18

Testing:
Speed rpm : 100
Minimum rack trave: 9.10
Speed rpm : 300
Rack travel in mm : 7.50...7.70

CONSTANT REGULATION
Speed rpm : 370...520

START CUT-OUT

Speed 1/min : 220 (240)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.90
Speed rpm : 1455...1465

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 71.0...81.0
1000 s: (68.0...84.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 a
Edition : 11.07.88
Replaces : 16.10.87
Test oil : ISO-4113

Combination no. : 0 400 846 522

Injection pump
Pump designation : PES6A90D41ORS2667
EP type number : 0 410 896 080
Governor
Governor design. : RQV300...1400AB1065-4L
Governor no. : 0 420 212 168

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM 366

1st version kW : 100.0
Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.25...2.35
: (2.20...2.40)

G02

Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1400
Rack travel in mm : 11.10...11.20
Del. quantity cm³/ : 6.3...6.4
100 s: (6.1...6.6)

Spread cm³ : 0.3
100 s: (0.4)

2nd speed rpm : 300.0
Rack travel in mm : 8.9...9.1
Del. quantity cm³/ : 0.9...1.3
100 s: (0.7...1.5)

Spread cm³ : 0.2
100 s: (0.4)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
travel mm : 0.80...1.30
2nd speed rpm : 500
travel mm : 2.30...2.80
3rd speed rpm : 750
travel mm : 4.10...4.30
4th speed rpm : 1500
travel mm : 8.50...8.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1400
Del. quantity : 63.5...64.5
1000 : (61.5...66.5)

Spread cm³ : 3.00
1000 : (4.50)

RATED SPEED

1st version
Control lever
position degrees: 61...69

Testing:
1st rack travel in: 10.10

Speed rpm : 1460...1470
2nd rack travel in: 4.00
Speed rpm : 1560...1590
4th rack travel in: 1700
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 21...29

Testing:
Speed rpm : 100
Minimum rack travel: 10.30
Speed rpm : 300
Rack travel in mm : 8.90...9.10

CONSTANT REGULATION
Speed rpm : 540...680

TORQUE CONTROL
Dimension a mm : 1.10
Torque control curve - 1st version
1st speed rpm : 1400
Rack travel in m: 11.10...11.20
2nd speed rpm : 500
Rack travel in m: 12.20...12.30
3rd speed rpm : 900
Rack travel in m: 11.70...11.90
4th speed rpm : 1100
Rack travel in m: 11.40...11.70

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 500
Del. quantity cm³/ : 52.0...54.0
1000 s: (49.5...56.5)
Speed rpm : 900
Del. quantity cm³/ : 55.0...58.0
1000 s: (52.5...60.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.10
Speed rpm : 1460...1470

STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm³/ : 78.0...88.0
1000 s: (75.0...91.0)
Rack travel in mm : 17.00...17.40

Remarks:

:
Set shutoff stop to contact at
3.0...3.5 mm control-rod travel.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 9,0 f
 Edition : 28.8.89
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 400 848 020

Injection pump
 Pump designation : PES8A75D32ORS2463
 EP type number : 0 410 879 989
 Governor
 Governor design. : RQV300...1500AB912DR
 Governor no. : 0 420 215 063

Customer-spec. information
 Customer : IHC

Engine : DV 550 C

1st version kW : 132.5
 Rated speed : 3000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Inlet press., bar : 2.4

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values -----

BEGINNING OF DELIVERY

Prestroke mm : 1.95...2.05 *
 : (1.90...2.10)
 Rack travel in mm : 10.70
 Prestroke mm : **
 Firing order : 1-8-7-3-6-5-4-2

Phasing : 0-45-90-135-180-225-
 280-315
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1500

 Rack travel in mm : 9.65...9.75

Del. quantity cm³/ : 5.8...5.9

100 s : (-)

Spread cm³ : 0.7

100 s : (-)

2nd speed rpm : 300
 Rack travel in mm : 9.60...9.70
 Del. quantity cm³/ : 0.1...1.5 *
 100 s : (-)

3rd speed rpm : 300
 Rack travel in mm : 9.20...9.40
 Del. quantity cm³/ : 3.7...4.6 **
 100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1600
 Rack travel in mm : 15.00...18.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1500
 Del. quantity : 58.8...59.8
 1000 : (-)
 Spread cm³ : 7.0
 1000 : (-)

RATED SPEED

1st version
 Control lever
 position degrees: 64...72

Testing:
 1st rack travel in: 8.70
 Speed rpm : 1600...1610
 2nd rack travel in: 6.25
 Speed rpm : 1785...1815
 4th rack travel in: 2000
 Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
 position degrees: 6...14

Testing:

Speed rpm : 200
Minimum rack trave: 7.40
Speed rpm : 300
Rack travel in mm : 5.40...7.30
Rack travel in mm : 3.05
Speed rpm : 440...460
Speed rpm : 600
Maximum rack trave: 2.60

TORQUE CONTROL

Dimension a mm : 0.35
Torque control curve - 1st version
1st speed rpm : 1500
Rack travel in m: 9.60...9.80
2nd speed rpm : 1000
Rack travel in m: 10.00...10.10
3rd speed rpm : 700
Rack travel in m: 10.00...10.10

START CUT-OUT

Speed 1/min : 150...230

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1000
Del.quantity cm3/ : 50.5...52.5
1000 s: (-)
Spread cm3 : 7.0
1000 s: (-)
Speed rpm : 300
Del.quantity cm3/ : 1.0...15.0 *
1000 s: (-)
Speed rpm : 300
Del.quantity cm3/ : 37.0...46.0 **
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.70
Speed rpm : 1600...1610

INTERMEDIATE RATED SPEED

Control lever

position degrees: 61...69
Rack travel in mm : 16.30
Speed rpm : 1490...1510
Rack travel in mm : 7.55
Speed rpm : 1740...1760

STARTING FUEL DELIVERY

G05

Speed rpm : 100
Del.quantity cm3/ : 110.0...132.0**
1000 s: (-)
Rack travel in mm : 21.00

HIGH IDLE

1st version

Speed rpm : 1650
Rack travel in mm : 7.00...8.00

LOW IDLE

Speed rpm : 300
Del.quantity cm3/ : 15.4...19.4 **
1000 s: (-)

Remarks:

* = Cylinders 1,7,6 and 4

** = Cylinders 2,8,3 and 5

Port opening at 3.95...4.00 mm plunger lift

Adjust stop lever to 0.5...1.0 mm before stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 9,0 f 5
Edition : 28.8.89
Replaces : -
Test oil : ISO-4113
Combination no. : 0 400 848 020
Injection pump
Pump designation : PES8A75D32ORS2463
EP type number : 0 410 879 989
Governor
Governor design. : RQV300...1500AB912DR

Customer-spec. information
Customer : IHC

Engine : DV 550 C

1st version kW : 147.2
Rated speed : 3000

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Inlet press., bar : 2.4

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 1.95...2.05 *
 : (1.90...2.10)
Rack travel in mm : 10.70
Prestroke mm : **
Rack travel in mm : 10.70
Firing order : 1-8-7-3-6-5-4-2

Phasing : 0-45-90-135-180-225-
 280-315
Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1500
Rack travel in mm : 10.65...10.75

Del. quantity cm³/ : 6.8...6.9
100 s : (-)

Spread cm³ : 0.6
100 s : (-)

2nd speed rpm : 300
Rack travel in mm : 9.00...9.50
Del. quantity cm³/ : 0.1...1.5 *
100 s : (-)

3rd speed rpm : 300
Rack travel in mm : 9.00...9.50
Del. quantity cm³/ : 3.7...4.6 **
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1600
Rack travel in mm : 15.00...18.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1500
Del. quantity : 68.0...69.0
1000 : (-)
Spread cm³ : 6.0
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 64...72

Testing:
1st rack travel in: 9.70
Speed rpm : 1600...1610
2nd rack travel in: 6.25
Speed rpm : 1785...1815
4th rack travel in: 2000
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 6...14

Testing:

Speed rpm : 200
Minimum rack trave: 7.40
Speed rpm : 300
Rack travel in mm : 5.40...7.30
Rack travel in mm : 3.05
Speed rpm : 440...460
Speed rpm : 600
Maximum rack trave: 2.60

START CUT-OUT

Speed 1/min : 150...230

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.70
Speed rpm : 1600...1610

INTERMEDIATE RATED SPEED

Control lever
position degrees: 61...69
Rack travel in mm : 16.30
Speed rpm : 1490...1510
Rack travel in mm : 7.55
Speed rpm : 1740...1760

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 110.0...134.0**
1000 s: (-)
Rack travel in mm : 21.00

HIGH IDLE

1st version
Speed rpm : 1650
Rack travel in mm : 7.00...8.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.90...6.10
Del. quantity cm³/ : 8.0...10.0 **
1000 s: (-)

Remarks:

* = Cylinders 1,7,6 and 4

** = Cylinders 2,8,3 and 5

Port opening at 3.95...4.00 mm plunger
lift

Adjust stop lever to 0.5...1.0 mm
before stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 9,0 f 1
 Edition : 28.8.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : D 400 848 022
 Injection pump
 Pump designation : PES8A75D32ORS2463
 Governor
 Governor design. : RQV300...1500AB913DR

Customer-spec. information

Customer : IHC
 Engine : DV 550 C

1st version kW : 117.8
 Rated speed : 3000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Inlet press., bar : 2.4

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 1.95...2.05 *
 : (1.90...2.10)
 Rack travel in mm : 10.70
 Prestroke mm : **
 Firing order : 1-8-7-3-6-5-4-2

Phasing : 0-45-90-135-180-225-

G08

Tolerance + - ° : 280-315
 : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1500

Rack travel in mm : 9.30...9.40

Del. quantity cm³/ : 4.9...5.0

100 s: (-)

Spread cm³ : 0.7

100 s: (-)

2nd speed rpm : 300

Rack travel in mm : 9.20...9.40

Del. quantity cm³/ : 1.1...1.5 *

100 s: (-)

3rd speed rpm : 300

Rack travel in mm : 9.20...9.40

Del. quantity cm³/ : 3.6...4.6 **

100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1600

Rack travel in mm : 15.00...18.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1500

Del. quantity : 49.5...50.5

1000 : (-)

Spread cm³ : 7.0

1000 : (-)

RATED SPEED

1st version

Control lever

position degrees: 64...72

Testing:

1st rack travel in: 8.35

Speed rpm : 1605...1615

2nd rack travel in: 6.25

Speed rpm : 1785...1815

4th rack travel in: 2000

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 6...14

Testing:

Speed rpm : 200
Minimum rack travel: 7.40
Speed rpm : 300
Rack travel in mm : 5.40...7.30
Rack travel in mm : 3.05
Speed rpm : 440...460
Speed rpm : 600
Maximum rack travel: 2.60

TORQUE CONTROL

Dimension a mm : 0.45
Torque control curve - 1st version
1st speed rpm : 1500
Rack travel in m: 9.30...9.40
2nd speed rpm : 1000
Rack travel in m: 9.80...10.00
3rd speed rpm : 700
Rack travel in m: 9.80...10.00

START CUT-OUT

Speed 1/min : 150...230

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1000
Del. quantity cm³/ : 46.5...48.5
1000 s: (-)
Spread cm³ : 6.0
1000 s: (-)

Speed rpm : 300
Del. quantity cm³/ : 1.0...15.0 *

Speed rpm : 300
Del. quantity cm³/ : 36.0...46.0 **
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.35
Speed rpm : 1605...1615

INTERMEDIATE RATED SPEED

Control lever

position degrees: 61...69
Rack travel in mm : 16.30
Speed rpm : 1490...1510
Rack travel in mm : 7.55
Speed rpm : 1740...1760

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 112.0...135.0**
1000 s: (-)
Rack travel in mm : 21.00

HIGH IDLE

1st version

Speed rpm : 1650
Rack travel in mm : 7.00...8.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.90...6.10
Del. quantity cm³/ : 17.0...21.0 **
1000 s: (-)

Remarks:

* = Cylinders 1,7,6 and 4

** = Cylinders 2,8,3 and 5

Port opening at 3.95...4.00 mm plunger lift

Adjust stop lever to 0.5...1.0 mm before stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 1 g 4
Edition : 27.06.88
Replaces : 30.03.87
Test oil : ISO-4113

Combination no. : 0 400 866 111

Injection pump
Pump designation : PES6A85D410/3RS2611
EP type number : 0 410 886 902
Governor
Governor design. : RSV325...1200A0C2148
L

Governer no. : 0 420 232 293

Customer-spec. information
Customer : KHD

Engine : F6L913

1st version kW : 84.0
Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.50...2.60
: (2.45...2.65)

Rack travel in mm : 9.0...12.0
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 11.3...11.4

Del. quantity cm³/ : 6.9...7.0

100 s: (6.7...7.2)

Spread cm³ : 0.3

100 s: (0.45)

2nd speed rpm : 325

Rack travel in mm : 8.4...8.6

Del. quantity cm³/ : 0.8...1.4

100 s: (0.6...1.6)

Spread cm³ : 0.2

100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Del. quantity : 69.5...70.5

1000 : (67.5...72.5)

Spread cm³ : 3.0

1000 : (4.5)

RATED SPEED

1st version

Control lever

position degrees: 53...61

Testing:

1st rack travel in: 10.30

Speed rpm : 1240...1250

2nd rack travel in: 4.00

Speed rpm : 1315...1345

4th rack travel in: 1425

Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 28...36
Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 8.50
Speed rpm : 325
Rack travel in mm : 8.40...8.60
Rack travel in mm : 2.00
Speed rpm : 450...510

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1200
Rack travel in m: 11.30...11.40
2nd speed rpm : 500
Rack travel in m: 11.80...11.90
3rd speed rpm : 975
Rack travel in m: 11.60...11.90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800
Del. quantity cm³/ : 63.5...65.5
1000 s: (61.0...68.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.30
Speed rpm : 1240...1250

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 16.90...17.30

Remarks:

: DX

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM 6.2 e 3
Edition : 01.07.88
Replaces : 12.09.86
Test oil : ISO-4113

Combination no. : 0 400 866 114

Injection pump
Pump designation : PES6A90D320/3RS2660
EP type number : 0 410 896 078
Governor
Governor design. : RSV325...1200A0C2182
-1R
Governor no. : 0 420 233 192

Customer-spec. information
Customer : MWM

Engine : TD226B-6

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 2.95...3.05
: (2.90...3.10)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0.50 (0.75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50
& maximum rack tra: 21.00
Difference ° CS : 3.50...4.50

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 12.00...12.10

Del. quantity cm³/ : 9.7...9.8

100 s: (9.5...10.0)

Spread cm³ : 0.30

100 s: (0.45)

2nd speed rpm : 325
Rack travel in mm : 6.9...7.1
Del. quantity cm³/ : 0.8...1.4
100 s: (0.6...1.6)
Spread cm³ : 0.25
100 s: 0.40

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...0.70

Governor spring pre-tension
Click setting x : 3.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1200
Aneroid pressure h: 700
Del. quantity : 97.5...98.5
1000 : (95.5...100.5)
Spread cm³ : 3.0
1000 : 4.5

RATED SPEED

1st version
Control lever
position degrees: 41...49

Testing:
1st rack travel in: 11.00
Speed rpm : 1240...1250

2nd rack travel in: 4.00
Speed rpm : 1275...1305
3rd rack travel in: 4.00
Speed rpm : 1300...1330
4th rack travel in: 1465
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 14...22
Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 6.50

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 325
Rack travel in mm : 6.90...7.10
Rack travel in mm : 2.00
Speed rpm : 495...555

TORQUE CONTROL

Dimension a mm : 0.30
Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 12.00...12.10
2nd speed rpm : 500
Rack travel in m: 12.30...12.40
3rd speed rpm : 1115
Rack travel in m: 12.10...12.30

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 12.30...12.40

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.10...10.20
2nd pressure hPa : 275
Rack travel in m: 11.70...11.80
3rd pressure hPa : 80
Rack travel in m: 10.60...10.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 275
Speed rpm : 500
Del. quantity cm³/ : 83.0...85.0
1000 s: (80.5...87.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.00
Speed rpm : 1240...1250

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 135.0...145.0
1000 s: (132.0...148.0)
Rack travel in mm : 19.50...21.00

Remarks:

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 4,9 b 4
Edition : 04.08.89
Replaces : -
Test oil : ISO-4113
Combination no. : 0 400 874 072
Injection pump
Pump designation : PES4A85C420LS2054
Governor
Governor design. : RSV300...950A2B262DR

Customer-spec. information
Customer : CASE

Engine : A 301 D

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : WS 187P (CASE)

Inlet press., bar : 1.0

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
: (2,10...2,30)
Rack travel in mm : 9,00...12,00
Firing order : 1-3-4-2

Phasing : 0-90-180-270
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000
Rack travel in mm : 9,00
Del. quantity cm³/ : 6,55...7,05

100 s: (-)

Spread cm³ : 0,4
100 s: (-)

2nd speed rpm : 1000
Rack travel in mm : 15,00
Del. quantity cm³/ : 14,05...14,85
100 s: (-)

3rd speed rpm : 200
Rack travel in mm : 6,00
Del. quantity cm³/ : 1,3...2,3
100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 930
Del. quantity : 71,0...73,0
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 40...48

Testing:
1st rack travel in: 7,50
Speed rpm : 1085...1015
2nd rack travel in: 2,80
Speed rpm : 1065...1095
4th rack travel in: 1160
Speed rpm : 0,00...1,00

LOW IDLE 1

Control lever
position degrees: 22...30
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5,50

full-load delivery with torque-control

Testing:

Speed rpm : 150
Minimum rack trave: 19,00
Speed rpm : 300
Rack travel in mm : 5,20...5,80
Rack travel in mm : 2.85
Speed rpm : 390...410
Speed rpm : 530
Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 930
Rack travel in m: 9,00
2nd speed rpm : 800
Rack travel in m: 9,40...9,60
3rd speed rpm : 600
Rack travel in m: 9,80...10,00
4th speed rpm : 400
Rack travel in m: 9,80...10,10

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del.quantity cm3/ : 80,0...83,0
1000 s: (-)
Speed rpm : 550
Del.quantity cm3/ : 79,0...83,0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 950...965

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 80,0...90,0

HIGH IDLE

1st version

Speed rpm : 1040
Del.quantity cm3/ : 13,5...23,5
1000 s: (-)

Remarks:

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 4,9 b 3
Edition : 04.08.89
Replaces : -
Test oil : ISO-4113
Combination no. : 0 400 874 083
Injection pump
Pump designation : PES4A85C420LS2054
Governor
Governor design. : RSV300...975A2B262

Customer-spec. information
Customer : CASE

Engine : A 301 D

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : WS 187P (CASE)

Inlet press., bar : 1.0

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
 : (2,10...2,30)
Rack travel in mm : 9,00...12,00
Firing order : 1-3-4-2

Phasing : 0-90-180-270
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00

Del. quantity cm³/ : 6,55...7,05

100 s : (-)

Spread cm³ : 0,4

100 s : (-)

2nd speed rpm : 1000
Rack travel in mm : 15,00
Del. quantity cm³/ : 14,05...14,85
100 s : (-)
3rd speed rpm : 1000
Rack travel in mm : 6,00
Del. quantity cm³/ : 2,3...3,1
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 955
Del. quantity : 70,0...72,0
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 40...48

Testing:
1st rack travel in: 7,60
Speed rpm : 1005...1035
2nd rack travel in: 3,70
Speed rpm : 1065...1095
4th rack travel in: 1200
Speed rpm : 0,00...1,00

LOW IDLE 1

Control lever
position degrees: 22...30
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5,50

control-rod travel. Increase in

Testing:

Speed rpm : 150
Minimum rack trave: 19,00
Speed rpm : 300
Rack travel in mm : 5,20...5,80
Rack travel in mm : 2,85
Speed rpm : 390...410
Speed rpm : 530
Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 955
Rack travel in m: 9,00
2nd speed rpm : 800
Rack travel in m: 9,60...9,80
3rd speed rpm : 600
Rack travel in m: 9,90...10,20
4th speed rpm : 400
Rack travel in m: 9,90...10,20

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del.quantity cm³/ : 80,0...83,0
1000 s: (-)
Speed rpm : 550
Del.quantity cm³/ : 77,5...81,5
1000 s: (-)

BREAKAWAY

1st version

1mm rack: travel less than

full load rack tr: 8,00
Speed rpm : 975...990

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 80,0...90,0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1040
Del.quantity cm³/ : 13,5...23,5
1000 s: (-)

Remarks:

Adjustment without torque-control
spring retainer with 1 mm less

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 1 a 1
 Edition : 04.08.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 874 101
 Injection pump
 Pump designation : PES4A80C42OLS2263
 Governor
 Governor design. : RSV375...1000A2B539D
 R

Customer-spec. information
 Customer : CASE

Engine : A 267 BD

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : WS 187P (CASE)
 Inlet press., bar : 1.25
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test lines : 9 681 230 706
 Outside diameter
 x Wall thickness
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
 : (2,10...2,30)
 Rack travel in mm : 9,00...12,00
 Firing order : 1-3-4-2

Phasing : 0-90-180-270
 Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000
 Rack travel in mm : 9,00
 Del. quantity cm³/ : 4,15...4,55
 100 s : (-)
 Spread cm³ : 0,3
 100 s : (-)
 2nd speed rpm : 1000
 Rack travel in mm : 12,00
 Del. quantity cm³/ : 6,85...7,65
 100 s : (-)
 3rd speed rpm : 200
 Rack travel in mm : 6,00
 Del. quantity cm³/ : 1,35...2,15
 100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0,30...0,70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 980
 Del. quantity : 60,0...62,0
 1000 : (-)

RATED SPEED

1st version
 Control lever
 position degrees: 42...50

Testing:
 1st rack travel in: 11,00
 Speed rpm : 995...1025
 2nd rack travel in: 5,10
 Speed rpm : 1085...1115
 4th rack travel in: 1240
 Speed rpm : 0,00...1,00

LOW IDLE 1

Control lever
 position degrees: 24...32
 Setting point w/out bumper spring

Speed rpm : 375
Rack travel in mm : 6,00

Testing:

Speed rpm : 150
Minimum rack trave: 19,00
Speed rpm : 375
Rack travel in mm : 5,70...6,30
Rack travel in mm : 3,95
Speed rpm : 440...460
Speed rpm : 600
Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 980
Rack travel in m: 9,00
2nd speed rpm : 800
Rack travel in m: 9,30...9,50
3rd speed rpm : 500
Rack travel in m: 9,40...9,70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700
Del. quantity cm³/ : 61,5...64,5
1000 s: (-)
Speed rpm : 600
Del. quantity cm³/ : <63,5
1000 s: (-)

BREAKAWAY

1st version

1mm rack: travel less than
full load rack tr: 8,00
Speed rpm : 1010

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 111,0...117,0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1110
Del. quantity cm³/ : 6,5...14,5
1000 s: (-)

LOW IDLE

Speed rpm : 375

Del. quantity cm³/ : 12,5...16,5
1000 s: (-)

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 4,9 a 2
Edition : 04.08.89
Replaces : -
Test oil : ISO-4113
Combination no. : 0 400 874 106
Injection pump
Pump designation : PES4A85C420LS2263
Governor
Governor design. : RSV375...975A2B543DR

Customer-spec. information
Customer : CASE

Engine : A 301 BD

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
 : (2,10...2,30)
Rack travel in mm : 9,00...12,00
Firing order : 1-3-4-2

Phasing : 0-90-180-270
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00

Del. quantity cm³/ : 4,15...4,55

100 s : (-)

Spread cm³ : 0,4

100 s : (-)

2nd speed rpm : 1000
Rack travel in mm : 12,00
Del. quantity cm³/ : 7,25...8,05
100 s : (-)
3rd speed rpm : 200
Rack travel in mm : 6,00
Del. quantity cm³/ : 0,95...1,75
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 975
Del. quantity : 62,0...64,0
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 39...47

Testing:
1st rack travel in: 10,50
Speed rpm : 1000...1030
2nd rack travel in: 4,10
Speed rpm : 1085...1115
4th rack travel in: 1200
Speed rpm : 0,00...1,00

LOW IDLE 1

Control lever
position degrees: 22...30
Setting point w/out bumper spring
Speed rpm : 375
Rack travel in mm : 7,50

Testing:

Speed rpm : 150
Minimum rack trave: 19,00
Speed rpm : 375
Rack travel in mm : 7,20...7,80
Rack travel in mm : 5,25
Speed rpm : 440...460
Speed rpm : 640
Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 975
Rack travel in m: 9,00
2nd speed rpm : 800
Rack travel in m: 9,50...9,70
3rd speed rpm : 450
Rack travel in m: 10,10...10,40

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm3/ : 74,0...77,0
1000 s: (-)
Speed rpm : 500
Del.quantity cm3/ : <76,0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 1015

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 126,0...132,0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1075
Del.quantity cm3/ : 10,5...19,5
1000 s: (-)

LOW IDLE

Speed rpm : 375
Del.quantity cm3/ : 15,5...19,5
1000 s: (-)

Remarks:

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 4,9 a 3
Edition : 04.08.89
Replaces : -
Test oil : ISO-4113
Combination no. : 0 400 874 137
Injection pump
Pump designation : PES4A85C420LS2263
Governor
Governor design. : RSV375...975A2B543DR

Customer-spec. information
Customer : CASE

Engine : A 301 BD

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
 : (2,10...2,30)
Rack travel in mm : 9,00...12,00
Firing order : 1-3-4-2

Phasing : 0-90-180-270
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00

Del. quantity cm³/ : 4,15...4,55

100 s : (-)

Spread cm³ : 0,4

100 s : (-)

2nd speed rpm : 1000
Rack travel in mm : 12,00
Del. quantity cm³/ : 7,25...8,05
100 s : (-)

3rd speed rpm : 200
Rack travel in mm : 6,00
Del. quantity cm³/ : 0,95...1,75
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 975
Del. quantity : 62,0...64,0
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 39...47

Testing:
1st rack travel in: 10,50
Speed rpm : 1000...1030
2nd rack travel in: 4,10
Speed rpm : 1085...1115
4th rack travel in: 1200
Speed rpm : 0,00...1,00

LOW IDLE 1

Control lever
position degrees: 22...30
Setting point w/out bumper spring
Speed rpm : 375
Rack travel in mm : 7,50

Testing:

Speed rpm : 150
 Minimum rack travel: 19,00
 Speed rpm : 375
 Rack travel in mm : 7,20...7,80
 Rack travel in mm : 5,25
 Speed rpm : 440...460
 Speed rpm : 640
 Maximum rack travel: 1,00

TORQUE CONTROL

Torque control curve - 1st version
 1st speed rpm : 975
 Rack travel in m: 9,00
 2nd speed rpm : 800
 Rack travel in m: 9,50...9,70
 3rd speed rpm : 450
 Rack travel in m: 10,10...10,40

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
 Del. quantity cm³/ : 74,0...77,0
 1000 s: (-)
 Speed rpm : 500
 Del. quantity cm³/ : <76,0
 1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00
 Speed rpm : 1015

STARTING FUEL DELIVERY

Speed rpm : 100
 Del. quantity cm³/ : 126,0...132,0
 1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1075
 Del. quantity cm³/ : 10,5...19,5
 1000 s: (-)

LOW IDLE

Speed rpm : 375
 Del. quantity cm³/ : 15,5...19,5
 1000 s: (-)

Remarks:

Adjustment without torque-control
 spring retainer with 1 mm less
 control-rod travel. Increase in
 full-load delivery with torque-control
 spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 1 a
Edition : 04.08.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 400 874 153

Injection pump
Pump designation : PES4A80C420LS2263
Governor
Governor design. : RSV375...1000A2B518D
R

Customer-spec. information
Customer : CASE

Engine : A-267 BD

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
: (2,10...2,30)
Rack travel in mm : 9,00...12,00
Firing order : 1-3-4-2

Phasing : 0-90-180-240
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00

Del. quantity cm³/ : 4,15...4,55

100 s : (-)

Spread cm³ : 0,3

100 s : (-)

2nd speed rpm : 1000

Rack travel in mm : 12,00

Del. quantity cm³/ : 6,85...7,65

100 s : (-)

3rd speed rpm : 200

Rack travel in mm : 6,00

Del. quantity cm³/ : 1,35...2,15

100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Del. quantity : 62,5...64,5

1000 : (-)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 10,90

Speed rpm : 1025...1055

2nd rack travel in: 4,60

Speed rpm : 1085...1115

4th rack travel in: 1200

Speed rpm : 0,00...1,00

LOW IDLE 1

Control lever

position degrees: 18...26

Setting point w/out bumper spring

Speed rpm : 375
Rack travel in mm : 6,10

Testing:

Speed rpm : 150
Minimum rack travel: 19,00
Speed rpm : 375
Rack travel in mm : 5,80...6,40
Rack travel in mm : 3,30
Speed rpm : 440...460
Speed rpm : 580
Maximum rack travel: 1,00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1000
Rack travel in m: 9,00
2nd speed rpm : 800
Rack travel in m: 9,60...9,80
3rd speed rpm : 500
Rack travel in m: 9,90...10,20

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del. quantity cm³/ : 71,5...76,5
1000 s: (-)
Speed rpm : 550
Del. quantity cm³/ : <74,5
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9,00
Speed rpm : 1040

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 111,0...117,0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1100
Del. quantity cm³/ : 7,5...15,5
1000 s: (-)

LOW IDLE

Speed rpm : 375

Del. quantity cm³/ : 12,5...16,5
1000 s: (-)

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 p
Edition : 04.08.89
Replaces : -
Test oil : ISO-4113
Combination no. : 0 400 874 158
Injection pump
Pump designation : PES4A85D42OLS2263
Governor
Governor design. : RSV375...975A2B543DR

Customer-spec. information
Customer : CASE

Engine : A 504 BD

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
 : (2,10...2,30)
Rack travel in mm : 9,00...12,00
Firing order : 1-3-4-2

Phasing : 0-90-180-270
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00

Del. quantity cm³/ : 4,15...4,55

100 s : (-)

Spread cm³ : 0,4

100 s : (-)

2nd speed rpm : 1000
Rack travel in mm : 12,00
Del. quantity cm³/ : 7,25...8,05
100 s : (-)
3rd speed rpm : 200
Rack travel in mm : 6,00
Del. quantity cm³/ : 0,95...1,75
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 975
Del. quantity : 62,0...64,0
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 39...47

Testing:
1st rack travel in: 10,50
Speed rpm : 1000...1030
2nd rack travel in: 4,10
Speed rpm : 1085...1115
4th rack travel in: 1200
Speed rpm : 0,00...1,00

LOW IDLE 1

Control lever
position degrees: 22...30
Setting point w/out bumper spring
Speed rpm : 375
Rack travel in mm : 7,50

Testing:

Speed rpm : 150
Minimum rack trave: 19,00
Speed rpm : 375
Rack travel in mm : 7,20...7,80
Rack travel in mm : 5,25
Speed rpm : 440...460
Speed rpm : 640
Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 975
Rack travel in m: 9,00
2nd speed rpm : 800
Rack travel in m: 9,50...9,70
3rd speed rpm : 450
Rack travel in m: 10,10...10,40

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm3/ : 74,0...77,0
1000 s: (-)
Speed rpm : 500
Del.quantity cm3/ : <76,0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 1015

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 126,0...132,0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1075
Del.quantity cm3/ : 10,5...18,5
1000 s: (-)

LOW IDLE

Speed rpm : 375
Del.quantity cm3/ : 15,5...19,5
1000 s: (-)

Remarks:

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 5,5 e 5
Edition : 04.08.89
Replaces : -
Test oil : ISO-4113
Combination no. : 0 400 874 159
Injection pump
Pump designation : PES4A85D42OLS2263
Governor
Governor design. : RSV375...1100A2B554D
R

Customer-spec. information
Customer : CASE

Engine : A-336 BD

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
: (2,10...2,30)
Rack travel in mm : 9,00...12,00
Firing order : 1-3-4-2

Phasing : 0-90-180-240

G28

BASIC SETTING

1st speed rpm : 1000
Rack travel in mm : 9,00
Del. quantity cm³/ : 4,15...4,55

100 s : (-)

Spread cm³ : 0,4

100 s : (-)

2nd speed rpm : 1000
Rack travel in mm : 12,00
Del. quantity cm³/ : 7,25...8,05
100 s : (-)

3rd speed rpm : 200
Rack travel in mm : 6,00
Del. quantity cm³/ : 0,95...1,95
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Del. quantity : 80,5...83,0
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 35...43

Testing:
1st rack travel in: 12,30
Speed rpm : 1125...1155
2nd rack travel in: 4,90
Speed rpm : 1185...1215
4th rack travel in: 1300
Speed rpm : 0,30...1,00

LOW IDLE 1

Control lever
position degrees: 13...21
Setting point w/out bumper spring
Speed rpm : 375
Rack travel in mm : 7,70

Testing:

Speed rpm : 150
Minimum rack trave: 19,00
Speed rpm : 375
Rack travel in mm : 7,40...8,00
Rack travel in mm : 4,35
Speed rpm : 440...460
Speed rpm : 580
Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 9,00
2nd speed rpm : 900
Rack travel in m: 9,30...9,50
3rd speed rpm : 500
Rack travel in m: 9,40...9,70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm3/ : 84,0...90,0
1000 s: (-)
Speed rpm : 650
Del.quantity cm3/ : <89,0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 1140...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 124,0...134,0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1200
Del.quantity cm3/ : 6,5...14,5
1000 s: (-)

LOW IDLE

Speed rpm : 375
Del.quantity cm3/ : 18,5...22,5
1000 s: (-)

H01

Remarks:

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 4,9 a 1
Edition : 01.08.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 400 874 160

Injection pump
Pump designation : PES4A85D420LS2263
Governor
Governor design. : RSV375...1000A2B547D
R

Customer-spec. information
Customer : CASE

Engine : A 301 BD

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : WS 187P (CASE)

Inlet press., bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
 : (2,10...2,30)
Rack travel in mm : 9,00...12,00
Firing order : 1-3-4-2

Phasing : 0-90-180-270
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00

Del. quantity cm³/ : 4,35...4,55

100 s : (-)

2nd speed rpm : 200
Rack travel in mm : 6,00
Del. quantity cm³/ : 1,15...1,75
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1000
Del. quantity : 70,0...71,0
1000 : (69,0...72,0)

RATED SPEED

1st version
Control lever
position degrees: 37...45

Testing:
1st rack travel in: 11,20
Speed rpm : 1030...1050
2nd rack travel in: 5,60
Speed rpm : 1065...1095
4th rack travel in: 1200
Speed rpm : 0,20...1,20

LOW IDLE 1

Control lever
position degrees: 17...25
Setting point w/out bumper spring
Speed rpm : 375
Rack travel in mm : 7,50

Testing:
Speed rpm : 150
Minimum rack travel: 19,00
Speed rpm : 375
Rack travel in mm : 7,40...7,60

Rack travel in mm : 4,00
Speed rpm : 450...470
Speed rpm : 600
Maximum rack travel: 1,00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 9,00
2nd speed rpm : 300
Rack travel in m: 9,80...9,90
3rd speed rpm : 400
Rack travel in m: 10,50...10,70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del. quantity cm³/ : 85,5...88,5
1000 s: (84,5...89,5)
Speed rpm : 500
Del. quantity cm³/ : <89,5
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 1040...1055

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 124,0...135,0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1090
Del. quantity cm³/ : 9,5...17,5
1000 s: (-)

LOW IDLE

Speed rpm : 375
Del. quantity cm³/ : 15,5...19,5
1000 s: (-)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 1 a 2
Edition : 04.08.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 400 874 162

Injection pump
Pump designation : PES4A80D420LS2263
Governor
Governor design. : RSV375...1000A2B518D
R

Customer-spec. information
Customer : CASE

Engine : A 267 BD

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
: (2,10...2,30)
Rack travel in mm : 9,00...12,00
Firing order : 1-3-4-2

Phasing : 0-90-180-270

H04

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00

Del. quantity cm³/ : 4,15...4,55

100 s : (-)

Spread cm³ : 0,3

100 s : (-)

2nd speed rpm : 1000
Rack travel in mm : 12,00
Del. quantity cm³/ : 6,85...7,65
100 s : (-)
3rd speed rpm : 200
Rack travel in mm : 6,00
Del. quantity cm³/ : 1,35...2,15
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1000
Del. quantity : 62,5...64,5
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 37...45

Testing:
1st rack travel in: 10,90
Speed rpm : 1025...1055
2nd rack travel in: 4,60
Speed rpm : 1085...1115
4th rack travel in: 1200
Speed rpm : 0,00...1,00

LOW IDLE 1

Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 375
Rack travel in mm : 6,10

Testing:

Speed rpm : 150
Minimum rack trave: 19,00
Speed rpm : 375
Rack travel in mm : 5,80...6,40
Rack travel in mm : 3,30
Speed rpm : 440...460
Speed rpm : 580
Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1000
Rack travel in m: 9,00
2nd speed rpm : 800
Rack travel in m: 9,60...9,80
3rd speed rpm : 500
Rack travel in m: 9,90...10,20

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del.quantity cm3/ : 71,5...76,5
1000 s: (-)
Speed rpm : 550
Del.quantity cm3/ : <74,5
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 1040

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 111,0...117,0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1100
Del.quantity cm3/ : 7,5...15,5
1000 s: (-)

LOW IDLE

Speed rpm : 375
Del.quantity cm3/ : 12,5...16,5
1000 s: (-)

H05

Remarks:

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 5,5 e 4
Edition : 04.08.89
Replaces : -
Test oil : ISO-4113
Combination no. : 0 400 874 173
Injection pump
Pump designation : PES4A85D420LS2263
Governor
Governor design. : RSV375...1100A2B626D
R

Customer-spec. information
Customer : CASE

Engine : A 336 BD

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
: (2,10...2,30)
Rack travel in mm : 9,00...12,00
Firing order : 1-3-4-2

Phasing : 0-90-180-270
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000
Rack travel in mm : 9,00
Del. quantity cm³/ : 4,15...4,55
100 s : (-)
Spread cm³ : 0,4
100 s : (-)
2nd speed rpm : 1000
Rack travel in mm : 12,00
Del. quantity cm³/ : 7,25...8,05
100 s : (-)
3rd speed rpm : 200
Rack travel in mm : 6,00
Del. quantity cm³/ : 0,95...1,75
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Del. quantity : 92,5...94,5
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 38...46

Testing:
1st rack travel in: 13,20
Speed rpm : 1125...1155
2nd rack travel in: 5,00
Speed rpm : 1185...1215
4th rack travel in: 1280
Speed rpm : 0,00...1,50

LOW IDLE 1

Control lever
position degrees: 15...23
Setting point w/out bumper spring

Speed rpm : 375
Rack travel in mm : 7,80

Testing:

Speed rpm : 100
Minimum rack trave: 19,00
Speed rpm : 375
Rack travel in mm : 7,5...8,1
Rack travel in mm : 4.15
Speed rpm : 440...460
Speed rpm : 560
Maximum rack trave: 1,50

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 9,00
2nd speed rpm : 500
Rack travel in m: 9,40...9,70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm3/ : 98,5...102,5
1000 s: (-)
Speed rpm : 650
Del.quantity cm3/ : <101,5
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 8,00
Speed rpm : 1140

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 126,0...132,0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1200
Del.quantity cm3/ : 8,5...12,5
1000 s: (-)

LOW IDLE

Speed rpm : 375
Del.quantity cm3/ : 18,5...22,5
1000 s: (-)

Remarks:

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

H07

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 5,5 e 3
Edition : 07.08.89
Replaces : -
Test oil : ISO-4113
Combination no. : 0 400 874 175
Injection pump
Pump designation : PES4A85D420LS2263
Governor
Governor design. : RSV375...1100A2B649D
R

Customer-spec. information
Customer : CASE

Engine : A 336 BD

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
: (2,10...2,30)
Rack travel in mm : 9,00...12,00
Firing order : 1-3-4-2

Phasing : 0-90-180-270
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000
Rack travel in mm : 9,00
Del. quantity cm3/ : 4,15...4,55
100 s : (-)
Spread cm3 : 0,4
100 s : (-)

2nd speed rpm : 1000
Rack travel in mm : 12,00
Del. quantity cm3/ : 7,25...8,05
100 s : (-)
3rd speed rpm : 200
Rack travel in mm : 6,00
Del. quantity cm3/ : 0,95...1,75
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Del. quantity : 73,5...75,5
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 39...47

Testing:
1st rack travel in: 11,50
Speed rpm : 1125...1155
2nd rack travel in: 5,10
Speed rpm : 1185...1215
4th rack travel in: 1300
Speed rpm : 0,30...1,00

LOW IDLE 1

Control lever
position degrees: 18...26
Setting point w/out bumper spring

Speed rpm : 375
Rack travel in mm : 7,20

Del. quantity cm³/ : 15,5...19,5
1000 s: (-)

Testing:

Speed rpm : 150
Minimum rack trave: 19,00
Speed rpm : 375
Rack travel in mm : 6,90...7,50
Rack travel in mm : 4,40
Speed rpm : 440...460
Speed rpm : 600
Maximum rack trave: 1,00

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100
Rack travel in m: 9,00
2nd speed rpm : 900
Rack travel in m: 9,30...9,50
3rd speed rpm : 500
Rack travel in m: 9,40...9,70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del. quantity cm³/ : 76,5...79,5
1000 s: (-)
Speed rpm : 650
Del. quantity cm³/ : <78,0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 8,00
Speed rpm : 1140...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 124,0...134,0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1200
Del. quantity cm³/ : 6,5...14,5
1000 s: (-)

LOW IDLE

Speed rpm : 375

H09

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 5,5 e 2
Edition : 31.07.89
Replaces : -
Test oil : ISO-4113
Combination no. : 0 400 874 176
Injection pump
Pump designation : PES4A85D420LS2263
Governor
Governor design. : RSV375...1100A2B650D
R

Customer-spec. information

Customer : CASE
Engine : A-336BD

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : WS 187P (CASE)
Inlet press., bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening
pressure, bar : 172...175
Test lines : 9 681 230 706
Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600
(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
: (2,10...2,30)
Rack travel in mm : 9,00...12,00
Firing order : 1-3-4-2

Phasing : 0-90-180-270
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00

Del. quantity cm³/ : 4,35...4,55

100 s: (-)

2nd speed rpm : 200
Rack travel in mm : 6,00
Del. quantity cm³/ : 1,15...1,75
100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Del. quantity : 81,0...82,0
1000 : (80,0...83,0)

RATED SPEED

1st version
Control lever
position degrees: 35...43

Testing:
1st rack travel in: 12.15
Speed rpm : 1130...1150
2nd rack travel in: 3,30
Speed rpm : 1205...1235
4th rack travel in: 1280
Speed rpm : 0,20...1,20

LOW IDLE 1

Control lever
position degrees: 13...21
Setting point w/out bumper spring
Speed rpm : 375
Rack travel in mm : 7,70

Testing:
Speed rpm : 150
Minimum rack trave: 19,00
Speed rpm : 375
Rack travel in mm : 7,50...7,80

Rack travel in mm : 2.60
Speed rpm : 470...490
Speed rpm : 600
Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100
Rack travel in m: 9,00
2nd speed rpm : 900
Rack travel in m: 9,30...9,50
3rd speed rpm : 450
Rack travel in m: 9,50...9,70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del. quantity cm³/ : 81,0...90,0
1000 s: (86,0...91,0)
Speed rpm : 650
Del. quantity cm³/ : <89,0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 1140...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 124,0...134,0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1200
Del. quantity cm³/ : 6,50...14,50
1000 s: (-)

LOW IDLE

Speed rpm : 375
Del. quantity cm³/ : 18,5...22,5
1000 s: (-)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 5,5 d 3
Edition : 25.08.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 400 874 204

Injection pump
Pump designation : PES4A85D42OLS2459
EP type number : 0 410 884 954
Governor
Governor design. : RSV375...1100A2B649D
R
Governor no. : 0 420 235 163

Customer-spec. information
Customer : CASE

Engine : A 336 BD

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Inlet press., bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
: (2,10...2,30)

Rack travel in mm : 9,00...12,00

Firing order : 1-3-4-2

Phasing : 0-90-180-270
Tolerance + - ° : 0,50 (0,75)

H12

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11,50

Del. quantity cm³/ : 7,5...7,6

100 s : (-)

Spread cm³ : 0,3

100 s : (-)

2nd speed rpm : 375
Rack travel in mm : 7,20
Del. quantity cm³/ : 1,6...2,2
100 s : (-)
Spread cm³ : 0,2
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Del. quantity : 7,6...7,6
1000 : (-)
Spread cm³ : 3,0
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 37...45

Testing:
1st rack travel in: 10,50
Speed rpm : 1140...1155
2nd rack travel in: 3,60
Speed rpm : 1205...1235
4th rack travel in: 1300
Speed rpm : 0,30...1,00

LOW IDLE 1

Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 375
Rack travel in mm : 6,70

Testing:

Speed rpm : 150
Minimum rack trave: 19,00
Speed rpm : 375
Rack travel in mm : 7,10...7,30
Rack travel in mm : 3,00
Speed rpm : 470...490
Speed rpm : 600
Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100
Rack travel in m: 11,50
2nd speed rpm : 900
Rack travel in m: 11,80...11,90
3rd speed rpm : 500
Rack travel in m: 11,95...12,25

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm3/ : 75,8...78,8
1000 s: (-)

Spread cm3 : 4,0
1000 s: (-)

Speed rpm : 650
Del.quantity cm3/ : <78,2
1000 s: (-)

Spread cm3 : 4,0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10,50
Speed rpm : 1140...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 129,0...135,0
1000 s: (-)
Rack travel in mm : 17,70...18,00

HIGH IDLE

1st version

Speed rpm : 1200
Rack travel in mm : 4,90
Del.quantity cm3/ : 6,3...12,3
1000 s: (-)

Spread cm3 : 3,0
1000 s: (-)

LOW IDLE

Speed rpm : 375
Rack travel in mm : 7,20
Del.quantity cm3/ : 15,7...21,7
1000 s: (-)
Spread cm3 : 2,0
1000 s: (-)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 5,5 d 2
Edition : 25.08.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 400 874 205

Injection pump
Pump designation : PES4A85D42OLS2459
EP type number : 0 410 884 954
Governor
Governor design. : RSV375...1100A2B650D
R
Governor no. : 0 420 235 164

Customer-spec. information
Customer : CASE

Engine : A-336 BD

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : WS 187 P (CASE)

Inlet press., bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
: (2,10...2,30)
Rack travel in mm : 9,00...12,00
Firing order : 1-3-4-2

Phasing : 0-90-180-270
Tolerance + - ° : 0,50 (0,75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12,05...12,15

Del. quantity cm³/ : 8,2...8,3

100 s : (-)

Spread cm³ : 0,3

100 s : (-)

2nd speed rpm : 375
Rack travel in mm : 7,50
Del. quantity cm³/ : 1,8...2,4
100 s : (-)
Spread cm³ : 0,2
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Del. quantity : 82,0...83,0
1000 : (-)
Spread cm³ : 3,0
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 35...43

Testing:
1st rack travel in: 11,10
Speed rpm : 1140...1155
2nd rack travel in: 3,40
Speed rpm : 1205...1235
4th rack travel in: 1280
Speed rpm : 0,30...1,00

LOW IDLE 1

Control lever
position degrees: 13...21
Setting point w/out bumper spring
Speed rpm : 375
Rack travel in mm : 7,20

Testing:

Speed rpm : 150
Minimum rack trave: 19,00
Speed rpm : 375
Rack travel in mm : 7,60...7,80
Rack travel in mm : 2,60
Speed rpm : 470...490
Speed rpm : 600
Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 12,10
2nd speed rpm : 900
Rack travel in m: 12,60...12,80
3rd speed rpm : 450
Rack travel in m: 12,80...13,00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm3/ : 86,0...89,0
1000 s: (-)
Spread cm3 : 4,0
1000 s: (-)
Speed rpm : 650
Del.quantity cm3/ : <88,5
1000 s: (-)
Spread cm3 : 4,0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11,10
Speed rpm : 1140...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 128,0...134,0
1000 s: (-)
Rack travel in mm : 17,50...17,60

HIGH IDLE

1st version

H15

Speed rpm : 1200
Rack travel in mm : 5,10
Del.quantity cm3/ : 8,2...14,2
1000 s: (-)
Spread cm3 : 3,0
1000 s: (-)

LOW IDLE

Speed rpm : 375
Rack travel in mm : 7,50
Del.quantity cm3/ : 18,0...24,0
1000 s: (-)
Spread cm3 : 2,0
1000 s: (-)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 5,5 d 1
 Edition : 31.07.89
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 400 874 209

Injection pump
 Pump designation : PES4A85D42QLS2459
 Governor
 Governor design. : RSV375...1000A2B762D
 R

Customer-spec. information
 Customer : CASE

Engine : A-336 BD

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : WS 187 P (CASE)

Inlet press., bar : 1.5

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
 x Wall thickness
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
 : (2,10...2,30)
 Rack travel in mm : 9,00...12,00
 Firing order : 1-3-4-2

Phasing : 0-90-180-270
 Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 12,60

Del. quantity cm³/ : 8,6...8,7
 100 s : (8,4...8,8)

Spread cm³ : 0,3
 100 s : (-)

2nd speed rpm : 375
 Rack travel in mm : 8,00
 Del. quantity cm³/ : 1,8...2,1
 100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0,30...0,70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1000
 Del. quantity : 85,5...87,5
 1000 : (84,5...88,5)
 Spread cm³ : 3,0
 1000 : (-)

RATED SPEED

1st version
 Control lever
 position degrees: 37...45

Testing:
 1st rack travel in: 11,60
 Speed rpm : 1040...1060
 2nd rack travel in: 2,70
 Speed rpm : 1115...1145
 4th rack travel in: 1200
 Speed rpm : 0,30...1,70

LOW IDLE 1

Control lever
 position degrees: 16...24
 Setting point w/out bumper spring
 Speed rpm : 375
 Rack travel in mm : 8,00

Testing:

Speed rpm : 150
Minimum rack trave: 19,00
Speed rpm : 375
Rack travel in mm : 7,80...8,20
Rack travel in mm : 2,95
Speed rpm : 410...430
Speed rpm : 600
Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 12,60
2nd speed rpm : 700
Rack travel in m: 13,10...13,40
3rd speed rpm : 500
Rack travel in m: 13,10...13,50

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700
Del.quantity cm3/ : 91,5...96,5
1000 s: (90,5...97,5)
Speed rpm : 600
Del.quantity cm3/ : <95,0

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11,60
Speed rpm : 1040...1055

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 120,0...130,0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1100
Del.quantity cm3/ : 9,5...15,5
1000 s: (-)

LOW IDLE

Rack travel in mm : 375
Del.quantity cm3/ : 18,0...21,0
1000 s: (-)

Remarks:

H17

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 j 5
Edition : 07.08.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 400 876 008

Injection pump
Pump designation : PES6A80C42OLS2054
Governor
Governor design. : RSV300...1000A2B187D
R

Customer-spec. information
Customer : CASE

Engine : A 401 D

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
 : (2,10...2,30)
Rack travel in mm : 9,00...12,00
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00

Del. quantity cm³/ : 5,55...6,05

100 s : (-)

Spread cm³ : 0,4

100 s : (-)

2nd speed rpm : 1000
Rack travel in mm : 15,00
Del. quantity cm³/ : 11,55...12,85
100 s : (-)
3rd speed rpm : 200
Rack travel in mm : 6,00
Del. quantity cm³/ : 1,35...2,25
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 980
Del. quantity : 63,5...65,5
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 42...50

Testing:
1st rack travel in: 7,70
Speed rpm : 1015...1045
2nd rack travel in: 4,00
Speed rpm : 1085...1115
4th rack travel in: 1180
Speed rpm : 0,00...1,00

LOW IDLE 1

Control lever
position degrees: 19...27
Setting point w/out bumper spring

Speed rpm : 300
Rack travel in mm : 6,00

spring retainer with 1 mm less

Testing:

Speed rpm : 100
Minimum rack trave: 19,00
Speed rpm : 300
Rack travel in mm : 5,70...6,30
Rack travel in mm : 2,30
Speed rpm : 390...410
Speed rpm : 500
Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 980
Rack travel in m: 9,00
2nd speed rpm : 800
Rack travel in m: 9,60...9,80
3rd speed rpm : 700
Rack travel in m: 9,80...10,10
4th speed rpm : 400
Rack travel in m: 9,80...10,10

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700
Del. quantity cm³/ : 70,0...74,0
1000 s: (-)
Speed rpm : 600
Del. quantity cm³/ : 70,5...74,5
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 1000...1015

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 77,0...85,0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1050
Del. quantity cm³/ : 11,5...21,5
1000 s: (-)

Remarks:

Adjustment without torque-control

H19

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 j 6
Edition : 07.08.89
Replaces : -
Test oil : ISO-4113
Combination no. : 0 400 876 022
Injection pump
Pump designation : PES6A85C420LS2054
Governor
Governor design. : RSV300...900A2B132DR

Customer-spec. information
Customer : CASE

Engine : A-401

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : WS 187P (CASE)

Inlet press., bar : 1,25

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
 : (2,10...2,30)
Rack travel in mm : 9,00...12,00
Firing order : 1-5-3-6-2-4
Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0,50 (0,75)

H20

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00

Del. quantity cm³/ : 5,65...6,02

100 s : (-)

2nd speed rpm : 1000
Rack travel in mm : 15,00
Del. quantity cm³/ : 11,55...12,85
100 s : (-)
3rd speed rpm : 200
Rack travel in mm : 6,00
Del. quantity cm³/ : 1,35...2,25
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 880
Del. quantity : 79,8...81,8
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 35...43

LOW IDLE 1

Control lever
position degrees: 16...24
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6,50
Speed rpm : 300
Rack travel in mm : 6.40...6.60

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 9,00
2nd speed rpm : 700
Rack travel in m: 9,20...9,50
3rd speed rpm : 600
Rack travel in m: 9,60...9,90
4th speed rpm : 450

Rack travel in m: 9,70...10,00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del.quantity cm³/ : 78,5...81,5
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 900...915

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 77,0...86,0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 985
Del.quantity cm³/ : 10,0...18,0
1000 s: (-)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 f 8
Edition : 07.08.89
Replaces : -
Test oil : ISO-4113
Combination no. : 0 400 876 077
Injection pump
Pump designation : PES6A80C420LS2264
Governor
Governor design. : RSV375...950A2B520DR

Customer-spec. information
Customer : CASE

Engine : A 401 BD

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve
: WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
: (2,10...2,30)
Rack travel in mm : 9,00...12,00
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000
Rack travel in mm : 9,00
Del. quantity cm³/ : 4,15...4,55
100 s : (-)

Spread cm³ : 0,3
100 s : (-)

2nd speed rpm : 1000
Rack travel in mm : 12,00
Del. quantity cm³/ : 6,85...7,65
100 s : (-)
3rd speed rpm : 200
Rack travel in mm : 6,00
Del. quantity cm³/ : 1,35...2,15
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 930
Del. quantity : 61,5...63,5
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 39...47

Testing:
1st rack travel in: 8,50
Speed rpm : 985...1015
2nd rack travel in: 2,10
Speed rpm : 1085...1115
4th rack travel in: 1160
Speed rpm : 0,00...1,00

LOW IDLE 1

Control lever
position degrees: 23...31
Setting point w/out bumper spring
Speed rpm : 375
Rack travel in mm : 6,00

Testing:

Speed rpm : 150
Minimum rack trave: 19,00
Speed rpm : 375
Rack travel in mm : 5,70...6,30
Rack travel in mm : 3,95
Speed rpm : 440...460
Speed rpm : 600
Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 930
Rack travel in m: 9,00
2nd speed rpm : 750
Rack travel in m: 9,50...9,70
3rd speed rpm : 450
Rack travel in m: 9,80...10,10

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del.quantity cm3/ : 70,0...73,0
1000 s: (-)
Speed rpm : 550
Del.quantity cm3/ : <72,0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 960

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 111,0...115,0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1040
Del.quantity cm3/ : 10,5...18,5
1000 s: (-)

LOW IDLE

Speed rpm : 375
Del.quantity cm3/ : 12,5...15,5
1000 s: (-)

Remarks:

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 f11
 Edition : 07.08.89
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 400 876 079

Injection pump
 Pump designation : PES6A85C420LS2264
 Governor
 Governor design. : RSV375...1100A2B517D
 R

Customer-spec. information
 Customer : CASE

Engine : A 504 BD

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
 x Wall thickness
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
 : (2,10...2,30)
 Rack travel in mm : 9,00...12,00
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00

Del. quantity cm³/ : 4,15...4,55
 100 s : (-)

Spread cm³ : 0,4
 100 s : (-)

2nd speed rpm : 1000
 Rack travel in mm : 12,00
 Del. quantity cm³/ : 7,25...8,05
 100 s : (-)

3rd speed rpm : 200
 Rack travel in mm : 6,00
 Del. quantity cm³/ : 0,95...1,75
 100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0,30...0,70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Del. quantity : 82,5...84,5
 1000 : (-)

RATED SPEED

1st version
 Control lever
 position degrees: 39...47

Testing:
 1st rack travel in: 7,10
 Speed rpm : 1165...1195
 2nd rack travel in: 2,80
 Speed rpm : 1235...1265
 4th rack travel in: 1320
 Speed rpm : 0,30...1,00

LOW IDLE 1

Control lever
 position degrees: 17...25
 Setting point w/out bumper spring

Speed rpm : 375
Rack travel in mm : 7,50

Del. quantity cm³/ : 18,5...22,5
1000 s: (-)

Testing:

Speed rpm : 100
Minimum rack trave: 19,00
Speed rpm : 375
Rack travel in mm : 7,20...7,80
Rack travel in mm : 4,65
Speed rpm : 440...460
Speed rpm : 600
Maximum rack trave: 1,00

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100
Rack travel in m: 9,00
2nd speed rpm : 800
Rack travel in m: 9,60...9,80
3rd speed rpm : 400
Rack travel in m: 9,60...9,90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 850
Del. quantity cm³/ : 90,0...93,0
1000 s: (-)
Speed rpm : 750
Del. quantity cm³/ : <93,0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 1140...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 124,0...134,0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1200
Del. quantity cm³/ : 14,5...22,5
1000 s: (-)

LOW IDLE

Speed rpm : 375

H25

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 f16
 Edition : 07.08.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 876 099
 Injection pump
 Pump designation : PES6A85D420LS2264
 Governor
 Governor design. : RSV375...925A2B544DR

Customer-spec. information
 Customer : CASE

Engine : A-401 BD

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
 x Wall thickness
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
 : (2,10...2,30)
 Rack travel in mm : 9,00...12,00
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0,50 (0,75)

H26

BASIC SETTING

1st speed rpm : 1000

 Rack travel in mm : 9,00

 Del. quantity cm³/ : 4,15...4,55

 100 s : (-)

 Spread cm³ : 0,4

 100 s : (-)

 2nd speed rpm : 1000
 Rack travel in mm : 12,00
 Del. quantity cm³/ : 7,25...8,05
 100 s : (-)
 3rd speed rpm : 200
 Rack travel in mm : 6,00
 Del. quantity cm³/ : 0,45...1,75
 100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0,30...0,70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 925
 Del. quantity : 56,0...58,0
 1000 : (-)

RATED SPEED

1st version
 Control lever
 position degrees: 36...44

Testing:
 1st rack travel in: 10,20
 Speed rpm : 950...980
 2nd rack travel in: 6,60
 Speed rpm : 985...1015
 4th rack travel in: 1120
 Speed rpm : 0,00...1,00

LOW IDLE 1

Control lever
 position degrees: 20...28
 Setting point w/out bumper spring
 Speed rpm : 375
 Rack travel in mm : 6,60

Testing:

Speed rpm : 150
Minimum rack trave: 19,00
Speed rpm : 375
Rack travel in mm : 6,30...6,90
Rack travel in mm : 4,05
Speed rpm : 440...460
Speed rpm : 600
Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 925
Rack travel in m: 9,00
2nd speed rpm : 800
Rack travel in m: 9,50...9,70
3rd speed rpm : 450
Rack travel in m: 10,30...10,60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 550
Del. quantity cm³/ : 65,5...69,5
1000 s: (-)
Speed rpm : 450
Del. quantity cm³/ : <68,0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 965

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 126,0...132,0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1010
Del. quantity cm³/ : 8,5...16,5
1000 s: (-)

LOW IDLE

Speed rpm : 375
Del. quantity cm³/ : 12,5...16,5
1000 s: (-)

Remarks:

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 f18
 Edition : 07.08.89
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 400 876 100

Injection pump
 Pump designation : PES6A85C42OLS2264
 Governor
 Governor design. : RSV375...1000A2B546D
 R

Customer-spec. information
 Customer : CASE

Engine : A-401 BD

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
 x Wall thickness
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
 : (2,10...2,30)
 Rack travel in mm : 9,00...12,00
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00

Del. quantity cm³/ : 4,85...5,35
 100 s : (-)

Spread cm³ : 0,4
 100 s : (-)

2nd speed rpm : 1000
 Rack travel in mm : 12,00
 Del. quantity cm³/ : 8,25...9,05
 100 s : (-)

3rd speed rpm : 200
 Rack travel in mm : 6,00
 Del. quantity cm³/ : 1,15...1,95
 100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0,30...0,70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 980
 Del. quantity : 59,0...61,0
 1000 : (-)

RATED SPEED

1st version
 Control lever
 position degrees: 36...44

Testing:
 1st rack travel in: 7,20
 Speed rpm : 1035...1065
 2nd rack travel in: 3,70
 Speed rpm : 1085...1115
 4th rack travel in: 1200
 Speed rpm : 0,00...1,00

LOW IDLE 1

Control lever
 position degrees: 18...26
 Setting point w/out bumper spring

Speed rpm : 375
Rack travel in mm : 6,50

Testing:

Speed rpm : 150
Minimum rack travel: 19,00
Speed rpm : 375
Rack travel in mm : 6,20...6,80
Rack travel in mm : 3,80
Speed rpm : 440...460
Speed rpm : 600
Maximum rack travel: 1,00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 980
Rack travel in m: 9,00
2nd speed rpm : 800
Rack travel in m: 9,50...9,70
3rd speed rpm : 450
Rack travel in m: 9,90...10,20

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del. quantity cm³/ : 64,0...67,0
1000 s: (-)
Speed rpm : 550
Del. quantity cm³/ : <66,0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 1020

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 126,0...132,0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1090
Del. quantity cm³/ : 4,5...12,5
1000 s: (-)

LOW IDLE

Speed rpm : 375

Del. quantity cm³/ : 12,0...16,0
1000 s: (-)

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 f14
Edition : 07.08.89
Replaces : -
Test oil : ISO-4113
Combination no. : 0 400 876 120
Injection pump
Pump designation : PES6A85C420LS2264
Governor
Governor design. : RSV375...950A2B553DR

Customer-spec. information
Customer : CASE

Engine : A 401 BD

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
 : (2,10...2,30)
Rack travel in mm : 9,00...12,00
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0,50 (0,75)

J02

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00

Del. quantity cm³/ : 4,15...4,55

100 s : (-)

Spread cm³ : 0,4

100 s : (-)

2nd speed rpm : 1000
Rack travel in mm : 12,00
Del. quantity cm³/ : 7,25...8,05
100 s : (-)
3rd speed rpm : 200
Rack travel in mm : 6,00
Del. quantity cm³/ : 0,95...1,75
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 950
Del. quantity : 59,0...61,0
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 36...44

Testing:
1st rack travel in: 10,40
Speed rpm : 975...1005
2nd rack travel in: 4,50
Speed rpm : 1035...1065
4th rack travel in: 1140
Speed rpm : 0,00...1,00

LOW IDLE 1

Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 375
Rack travel in mm : 6,30

Testing:

Speed rpm : 150
Minimum rack trave: 19,00
Speed rpm : 375
Rack travel in mm : 6,00...6,60
Rack travel in mm : 3,80
Speed rpm : 440...460
Speed rpm : 600
Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 950
Rack travel in m: 9,00
2nd speed rpm : 800
Rack travel in m: 9,50...9,70
3rd speed rpm : 400
Rack travel in m: 10,30...10,60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm3/ : 72,0...76,0
1000 s: (-)
Speed rpm : 500
Del.quantity cm3/ : <74,5
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 990

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 126,0...132,0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1045
Del.quantity cm3/ : 6,5...14,5
1000 s: (-)

LOW IDLE

Speed rpm : 375
Del.quantity cm3/ : 12,5...16,5
1000 s: (-)

Remarks:

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 f12
Edition : 07.08.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 400 876 134

Injection pump
Pump designation : PES6A85C42OLS2264
Governor
Governor design. : RSV375...1050A2B567D
R

Customer-spec. information
Customer : CASE

Engine : A-451 BDT (T/C)

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
: (2,10...2,30)
Rack travel in mm : 9,00...12,00
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000
Rack travel in mm : 9,00
Del. quantity cm³/ : 4,65...5,15
100 s : (-)
Spread cm³ : 0,4
100 s : (-)

2nd speed rpm : 1000
Rack travel in mm : 12,00
Del. quantity cm³/ : 8,45...9,45
100 s : (-)
3rd speed rpm : 200
Rack travel in mm : 9,00
Del. quantity cm³/ : 2,75...3,65
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1050
Del. quantity : 96,0...98,0
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 35...43

Testing:
1st rack travel in: 12,10
Speed rpm : 1075...1105
2nd rack travel in: 5,40
Speed rpm : 1135...1165
4th rack travel in: 1260
Speed rpm : 0,00...1,00

LOW IDLE 1

Control lever
position degrees: 14...22
Setting point w/out bumper spring

Speed rpm : 375
Rack travel in mm : 7,40

Del.quantity cm³/ : 15,5...19,5
1000 s: (-)

Testing:

Speed rpm : 150
Minimum rack trave: 19,00
Speed rpm : 375
Rack travel in mm : 7,10...7,70
Rack travel in mm : 4,15
Speed rpm : 440...460
Speed rpm : 580
Maximum rack trave: 1,00

Remarks:

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050
Rack travel in m: 9,00
2nd speed rpm : 900
Rack travel in m: 9,10...9,30
3rd speed rpm : 500
Rack travel in m: 9,30...9,60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm³/ : 100,5...104,5
1000 s: (-)
Speed rpm : 650
Del.quantity cm³/ : <103,5
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 1090

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 124,0...134,0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1150
Del.quantity cm³/ : 9,5...19,5
1000 s: (-)

LOW IDLE

Speed rpm : 375

J05

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 f15
 Edition : 07.08.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 876 135
 Injection pump
 Pump designation : PES6A85C420LS2264
 Governor
 Governor design. : RSV375...950A2B553DR

Customer-spec. information
 Customer : CASE

Engine : A 401 BD

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
 x Wall thickness
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
 : (2,10...2,30)
 Rack travel in mm : 9,00...12,00
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0,50 (0,75)

J06

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00

Del. quantity cm³/ : 4,15...4,55

100 s : (-)

Spread cm³ : 0,4

100 s : (-)

2nd speed rpm : 1000

Rack travel in mm : 12,00

Del. quantity cm³/ : 7,25...8,05

100 s : (-)

3rd speed rpm : 200

Rack travel in mm : 6,00

Del. quantity cm³/ : 0,95...1,75

100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0,30...C,70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 950

Del. quantity : 59,0...61,0

1000 : (-)

RATED SPEED

1st version

Control lever

position degrees: 36...44

Testing:

1st rack travel in: 10,40

Speed rpm : 975...1005

2nd rack travel in: 4,50

Speed rpm : 1035...1065

4th rack travel in: 1140

Speed rpm : 0,00...1,00

LOW IDLE 1

Control lever

position degrees: 19...27

Setting point w/out bumper spring

Speed rpm : 375

Rack travel in mm : 6,30

Testing:

Speed rpm : 150
Minimum rack trave: 19,00
Speed rpm : 375
Rack travel in mm : 6,00...6,60
Rack travel in mm : 3,80
Speed rpm : 440...460
Speed rpm : 600
Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 950
Rack travel in m: 9,00
2nd speed rpm : 800
Rack travel in m: 9,50...9,70
3rd speed rpm : 400
Rack travel in m: 10,30...10,60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm3/ : 72,0...76,0
1000 s: (-)
Speed rpm : 500
Del.quantity cm3/ : <74,5
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 990

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 126,0...132,0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1045
Del.quantity cm3/ : 6,5...14,5
1000 s: (-)

LOW IDLE

Speed rpm : 375
Del.quantity cm3/ : 12,5...16,5
1000 s: (-)

Remarks:

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 f17
Edition : 07.08.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 400 876 136

Injection pump
Pump designation : PES6A85D420LS2264
Governor
Governor design. : RSV375...925A2B544DR

Customer-spec. information
Customer : CASE

Engine : A-401 BD

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
: (2,10...2,30)
Rack travel in mm : 9,00...12,00
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00

Del. quantity cm³/ : 4,15...4,55

100 s : (-)

Spread cm³ : 0,4

100 s : (-)

2nd speed rpm : 1000
Rack travel in mm : 12,00
Del. quantity cm³/ : 7,25...8,05
100 s : (-)

3rd speed rpm : 200
Rack travel in mm : 6,00
Del. quantity cm³/ : 0,45...1,75
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 925
Del. quantity : 56,0...58,0
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 36...44

Testing:
1st rack travel in: 10,20
Speed rpm : 950...980
2nd rack travel in: 6,60
Speed rpm : 985...1015
4th rack travel in: 1120
Speed rpm : 0,00...1,00

LOW IDLE 1

Control lever
position degrees: 20...28
Setting point w/out bumper spring
Speed rpm : 375
Rack travel in mm : 6,60

Testing:

Speed rpm : 150
Minimum rack trave: 19,00
Speed rpm : 375
Rack travel in mm : 6,30...6,90
Rack travel in mm : 4,05
Speed rpm : 440...460
Speed rpm : 600
Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 925
Rack travel in m: 9,00
2nd speed rpm : 800
Rack travel in m: 9,50...9,70
3rd speed rpm : 450
Rack travel in m: 10,30...10,60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 550
Del.quantity cm3/ : 65,5...69,5
1000 s: (-)
Speed rpm : 450
Del.quantity cm3/ : <68,0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 965

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 126,0...132,0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1010
Del.quantity cm3/ : 8,5...16,5
1000 s: (-)

LOW IDLE

Speed rpm : 375
Del.quantity cm3/ : 12,5...16,5
1000 s: (-)

Remarks:

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 f19
 Edition : 07.08.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 876 137
 Injection pump
 Pump designation : PES6A85C42OLS2264
 Governor
 Governor design. : RSV375...1000A2B546D
 R

Customer-spec. information
 Customer : CASE

Engine : A-401 BD

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : WS 187P (CASE)
 Inlet press., bar : 1.25
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test lines : 9 681 230 706
 Outside diameter
 x Wall thickness
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
 : (2,10...2,30)
 Rack travel in mm : 9,00...12,00
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000

 Rack travel in mm : 9,00

 Del. quantity cm³/ : 4,85...5,35

 100 s : (-)

 Spread cm³ : 0,4

 100 s : (-)

 2nd speed rpm : 1000
 Rack travel in mm : 12,00
 Del. quantity cm³/ : 8,25...9,05
 100 s : (-)
 3rd speed rpm : 200
 Rack travel in mm : 6,00
 Del. quantity cm³/ : 1,15...1,95
 100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0,30...0,70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 980
 Del. quantity : 59,0...61,0
 1000 : (-)

RATED SPEED

1st version
 Control lever
 position degrees: 36...44

Testing:
 1st rack travel in: 7,20
 Speed rpm : 1035...1065
 2nd rack travel in: 3,70
 Speed rpm : 1085...1115
 4th rack travel in: 1200
 Speed rpm : 0,00...1,00

LOW IDLE 1

Control lever
 position degrees: 18...26
 Setting point w/out bumper spring

Speed rpm : 375
Rack travel in mm : 6,50

Testing:

Speed rpm : 150
Minimum rack trave: 19,00
Speed rpm : 375
Rack travel in mm : 6,20...6,80
Rack travel in mm : 3,80
Speed rpm : 440...460
Speed rpm : 600
Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 980
Rack travel in m: 9,00
2nd speed rpm : 800
Rack travel in m: 9,50...9,70
3rd speed rpm : 450
Rack travel in m: 9,90...10,20

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del. quantity cm³/ : 64,0...67,0
1000 s: (-)
Speed rpm : 550
Del. quantity cm³/ : <66,0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 1020

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 126,0...132,0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1090
Del. quantity cm³/ : 4,5...12,5
1000 s: (-)

LOW IDLE

Speed rpm : 375

Del. quantity cm³/ : 12,0...16,0
1000 s: (-)

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 f 3
Edition : 07.08.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 400 876 139

Injection pump
Pump designation : PES6A85C42OLS2264
Governor
Governor design. : RSV375...1100A2B517D
R

Customer-spec. information
Customer : CASE

Engine : A 504 BD

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
 : (2,10...2,30)
Rack travel in mm : 9,00...12,00
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00

Del. quantity cm³/ : 4,15...4,55

100 s : (-)

Spread cm³ : 0,4

100 s : (-)

2nd speed rpm : 1000
Rack travel in mm : 12,00
Del. quantity cm³/ : 7,25...8,05
100 s : (-)
3rd speed rpm : 200
Rack travel in mm : 6,00
Del. quantity cm³/ : 0,95...1,75
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Del. quantity : 82,5...84,5
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 39...47

Testing:
1st rack travel in: 7,10
Speed rpm : 1165...1195
2nd rack travel in: 2,80
Speed rpm : 1235...1265
4th rack travel in: 1320
Speed rpm : 0,30...1,00

LOW IDLE 1

Control lever
position degrees: 17...25
Setting point w/out bumper spring

Speed rpm : 375
Rack travel in mm : 7,50

Del.quantity cm³/ : 18,5...22,5
1000 s: (-)

Testing:

Speed rpm : 100
Minimum rack trave: 19,00
Speed rpm : 375
Rack travel in mm : 7,20...7,80
Rack travel in mm : 4,65
Speed rpm : 440...460
Speed rpm : 600
Maximum rack trave: 1,00

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100
Rack travel in m: 9,00
2nd speed rpm : 800
Rack travel in m: 9,60...9,80
3rd speed rpm : 400
Rack travel in m: 9,60...9,90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 850
Del.quantity cm³/ : 90,0...93,0
1000 s: (-)
Speed rpm : 750
Del.quantity cm³/ : <93,0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 1140...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 124,0...134,0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1200
Del.quantity cm³/ : 14,5...22,5
1000 s: (-)

LOW IDLE

Speed rpm : 375

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 f13
Edition : 07.08.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 400 876 140

Injection pump
Pump designation : PES6A90C420LS2264
Governor
Governor design. : RSV375...1050A2B567D
R

Customer-spec. information
Customer : CASE

Engine : A-451 BDT (T/C)

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
: (2,10...2,30)
Rack travel in mm : 9,00...12,00
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00

Del. quantity cm³/ : 4,65...5,15

100 s : (-)

Spread cm³ : 0,4

100 s : (-)

2nd speed rpm : 1000
Rack travel in mm : 12,00
Del. quantity cm³/ : 8,45...9,45
100 s : (-)
3rd speed rpm : 200
Rack travel in mm : 9,00
Del. quantity cm³/ : 2,75...3,65
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1050
Del. quantity : 96,0...98,0
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 35...43

Testing:
1st rack travel in: 12,10
Speed rpm : 1075...1105
2nd rack travel in: 5,40
Speed rpm : 1135...1165
4th rack travel in: 1260
Speed rpm : 0,00...1,00

LOW IDLE 1

Control lever
position degrees: 14...22
Setting point w/out bumper spring

Speed rpm : 375
Rack travel in mm : 7,40

Del. quantity cm³/ : 15,5...19,5
1000 s: (-)

Testing:

Speed rpm : 150
Minimum rack trave: 19,00
Speed rpm : 375
Rack travel in mm : 7,10...7,70
Rack travel in mm : 4,15
Speed rpm : 440...460
Speed rpm : 580
Maximum rack trave: 1,00

Remarks:

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 9,00
2nd speed rpm : 900
Rack travel in m: 9,10...9,30
3rd speed rpm : 500
Rack travel in m: 9,30...9,60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del. quantity cm³/ : 100,5...104,5
1000 s: (-)
Speed rpm : 650
Del. quantity cm³/ : <103,5
1000 s: (-)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 1090

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 124,0...134,0
1000 s: (-)

HIGH IDLE

1st version
Speed rpm : 1150
Del. quantity cm³/ : 9,5...19,5
1000 s: (-)

LOW IDLE

Speed rpm : 375

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 f 9
Edition : 07.08.89
Replaces : -
Test oil : IS0-4113
Combination no. : 0 400 876 149
Injection pump
Pump designation : PES6A85C420LS2264
Governor
Governor design. : RSV375...1050A2B521D
R

Customer-spec. information
Customer : CASE

Engine : A-451 BD

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder
assembly : 0 681 230 009

Opening
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
: (2,10...2,30)
Rack travel in mm : 9,00...12,00
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00

Del. quantity cm³/ : 4,15...4,55

100 s : (-)

Spread cm³ : 0,4

100 s : (-)

2nd speed rpm : 1000
Rack travel in mm : 12,00
Del. quantity cm³/ : 7,25...8,05
100 s : (-)
3rd speed rpm : 200
Rack travel in mm : 6,00
Del. quantity cm³/ : 0,95...1,75
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1050
Del. quantity : 76,0...78,0
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 36...44

Testing:
1st rack travel in: 11,60
Speed rpm : 1075...1105
2nd rack travel in: 5,20
Speed rpm : 1135...1165
4th rack travel in: 1260
Speed rpm : 0,30...1,00

LOW IDLE 1

Control lever
position degrees: 16...24
Setting point w/out bumper spring

Speed rpm : 375
Rack travel in mm : 7,50

Testing:

Speed rpm : 150
Minimum rack travel: 19,00
Speed rpm : 375
Rack travel in mm : 7,20...7,80
Rack travel in mm : 4.50
Speed rpm : 440...460
Speed rpm : 600
Maximum rack travel: 1,00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050
Rack travel in m: 9,00
2nd speed rpm : 800
Rack travel in m: 9,50...9,70
3rd speed rpm : 500
Rack travel in m: 9,60...9,90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del.quantity cm³/ : 82,5...86,5
1000 s: (-)
Speed rpm : 550
Del.quantity cm³/ : <85,5
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 1090...1105

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 124,0...134,0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1150
Del.quantity cm³/ : 8,5...16,5
1000 s: (-)

LOW IDLE

Speed rpm : 375

Del.quantity cm³/ : 15,5...19,5
1000 s: (-)

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VMA 7,3 b
 Edition : 23.08.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 876 152
 Injection pump
 Pump designation : PES6A85D410RS2332
 Governor
 Governor design. : RSV250...900A1B1029L

Customer-spec. information
 Customer : VM MOTORI

Engine : 116 DAN

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Inlet press., bar : 1.0
 Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 3,70...3,75
 : (3,65...3,80)
 Rack travel in mm : 9,00...12,00
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000

 Rack travel in mm : 6,00

 Del. quantity cm³/ : 2,1...2,9

 100 s : (-)

2nd speed rpm : 1000
 Rack travel in mm : 9,00
 Del. quantity cm³/ : 6,0...6,5
 100 s : (-)
 Spread cm³ : 0,4
 100 s : (-)

3rd speed rpm : 200
 Rack travel in mm : 6,00
 Del. quantity cm³/ : 0,1...1,0
 100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0,30...0,70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 880
 Del. quantity : 83,5...85,5
 1000 : (-)

RATED SPEED

1st version
 Control lever
 position degrees: 46...54

Testing:
 1st rack travel in: 7,60
 Speed rpm : 965...995
 2nd rack travel in: 2,10
 Speed rpm : 1035...1065
 4th rack travel in: 1150
 Speed rpm : 0,00...1,00

LOW IDLE 1

Control lever
 position degrees: 20...28
 Setting point w/out bumper spring
 Speed rpm : 250
 Rack travel in mm : 6,00

Testing:
 Speed rpm : 100
 Minimum rack travel: 19,00
 Speed rpm : 250

Rack travel in mm : 5,70...6,30
Speed rpm : 450
Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 880
Rack travel in m: 9,00
2nd speed rpm : 400
Rack travel in m: 9,00
3rd speed rpm : 300
Rack travel in m: 10,20...10,80

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 910

LOW IDLE

Speed rpm : 200
Del. quantity cm³/ : 1,5...9,5
1000 s: (<1,5)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 f20
Edition : 07.08.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 400 876 153

Injection pump
Pump designation : PES6A85C42OLS2264
Governor
Governor design. : RSV375...1100A2B6000
R

Customer-spec. information
Customer : CASE

Engine : A 504 BD

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
 : (2,10...2,30)
Rack travel in mm : 9,00...12,00
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00

Del. quantity cm³/ : 4,15...4,55

100 s : (-)

Spread cm³ : 0,4

100 s : (-)

2nd speed rpm : 1000

Rack travel in mm : 12,00

Del. quantity cm³/ : 7,25...8,05

100 s : (-)

3rd speed rpm : 200

Rack travel in mm : 6,00

Del. quantity cm³/ : 0,95...1,75

100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1080

Del. quantity : 82,5...84,5

1000 : (-)

RATED SPEED

1st version

Control lever

position degrees: 40...48

Testing:

1st rack travel in: 7,40

Speed rpm : 1165...1195

2nd rack travel in: 2,80

Speed rpm : 1235...1165

4th rack travel in: 1320

Speed rpm : 0,00...1,00

LOW IDLE 1

Control lever

position degrees: 18...26

Setting point w/out bumper spring

Speed rpm : 375
Rack travel in mm : 7,50

Del. quantity cm³/ : 18,5...22,5
1000 s: (-)

Testing:

Speed rpm : 150
Minimum rack trave: 19,00
Speed rpm : 375
Rack travel in mm : 7,20...7,80
Rack travel in mm : 4,70
Speed rpm : 440...460
Speed rpm : 600
Maximum rack trave: 1,00

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1080
Rack travel in m: 9,00
2nd speed rpm : 800
Rack travel in m: 9,60...9,80
3rd speed rpm : 400
Rack travel in m: 9,60...9,90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 850
Del. quantity cm³/ : 90,0...93,0
1000 s: (-)
Speed rpm : 750
Del. quantity cm³/ : <93,0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 8,00
Speed rpm : 1120

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 126,0...132,0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1200
Del. quantity cm³/ : 14,5...22,5
1000 s: (-)

LOW IDLE

Speed rpm : 375

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 f21
Edition : 07.08.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 400 876 154

Injection pump
Pump designation : PES6A85D42OLS2264
Governor
Governor design. : RSV375...950A2B553DR

Customer-spec. information
Customer : CASE

Engine : A-401 BD

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder
assembly : 0 691 343 009

Opening
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values ____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
 : (2,10...2,30)
Rack travel in mm : 9,00...12,00
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00

Del. quantity cm³/ : 4,15...4,55

100 s : (-)

Spread cm³ : 0,4

100 s : (-)

2nd speed rpm : 1000
Rack travel in mm : 12,00
Del. quantity cm³/ : 7,25...8,05
100 s : (-)
3rd speed rpm : 200
Rack travel in mm : 6,00
Del. quantity cm³/ : 0,95...1,75
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...C,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 950
Del. quantity : 59,0...61,0
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 36...44

Testing:
1st rack travel in: 10,40
Speed rpm : 975...1005
2nd rack travel in: 4,50
Speed rpm : 1035...1065
4th rack travel in: 1140
Speed rpm : 0,00...1,00

LOW IDLE 1

Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 375
Rack travel in mm : 6,30

Testing:

Speed rpm : 150
Minimum rack trave: 19,00
Speed rpm : 375
Rack travel in mm : 6,00...6,60
Rack travel in mm : 3.80
Speed rpm : 440...460
Speed rpm : 600
Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 950
Rack travel in m: 9,00
2nd speed rpm : 800
Rack travel in m: 9,50...9,70
3rd speed rpm : 400
Rack travel in m: 10,30...10,60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm3/ : 72,0...76,0
1000 s: (-)
Speed rpm : 500
Del.quantity cm3/ : <74,0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 8,00
Speed rpm : 990

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 126,0...132,0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1045
Del.quantity cm3/ : 6,5...14,5
1000 s: (-)

LOW IDLE

Speed rpm : 375
Del.quantity cm3/ : 12,5...16,5
1000 s: (-)

Remarks:

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 f22
Edition : 07.08.89
Replaces : -
Test oil : IS0-4113
Combination no. : 0 400 876 155
Injection pump
Pump designation : PES6A85D420LS2264
Governor
Governor design. : RSV375...925A2B544DR

Customer-spec. information
Customer : CASE

Engine : A-401 BD

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
 : (2,10...2,30)
Rack travel in mm : 9,00...12,00
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00

Del. quantity cm³/ : 4,15...4,55

100 s : (-)

Spread cm³ : 0,4

100 s : (-)

2nd speed rpm : 1000
Rack travel in mm : 12,00
Del. quantity cm³/ : 7,25...8,05
100 s : (-)

3rd speed rpm : 200
Rack travel in mm : 6,00
Del. quantity cm³/ : 0,95...1,75
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 925
Del. quantity : 56,0...58,0
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 14...22

Testing:
1st rack travel in: 10,20
Speed rpm : 950...980
2nd rack travel in: 6,60
Speed rpm : 985...1015
4th rack travel in: 1120
Speed rpm : 0,00...1,00

LOW IDLE 1

Control lever
position degrees: 20...28
Setting point w/out bumper spring
Speed rpm : 375
Rack travel in mm : 6,60

Testing:

Speed rpm : 150
Minimum rack trave: 19,00
Speed rpm : 375
Rack travel in mm : 6,60...6,90
Rack travel in mm : 4,05
Speed rpm : 440...460
Speed rpm : 600
Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 925
Rack travel in m: 9,00
2nd speed rpm : 800
Rack travel in m: 9,50...9,70
3rd speed rpm : 450
Rack travel in m: 10,30...10,60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 550
Del. quantity cm³/ : 65,5...69,5
1000 s: (-)
Speed rpm : 450
Del. quantity cm³/ : <68,0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 965

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 126,0...132,0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1010
Del. quantity cm³/ : 8,5...16,5
1000 s: (-)

LOW IDLE

Speed rpm : 375
Del. quantity cm³/ : 12,5...16,5
1000 s: (-)

Remarks:

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 f23
Edition : 07.08.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 400 876 156

Injection pump
Pump designation : PES6A85D420LS2264
Governor
Governor design. : RSV375...1000A2B546D
R

Customer-spec. information
Customer : CASE

Engine : A-401 BD

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
: (2,10...2,30)
Rack travel in mm : 9,00...12,00
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00

Del. quantity cm³/ : 4,85...5,35

100 s : (-)

Spread cm³ : 0,4

100 s : (-)

2nd speed rpm : 10000
Rack travel in mm : 12,00
Del. quantity cm³/ : 8,25...9,05
100 s : (-)
3rd speed rpm : 200
Rack travel in mm : 6,00
Del. quantity cm³/ : 1,15...1,95
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 980
Del. quantity : 58,0...60,0
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 36...44

Testing:
1st rack travel in: 7,20
Speed rpm : 1035...1065
2nd rack travel in: 3,70
Speed rpm : 1085...1115
4th rack travel in: 1200
Speed rpm : 0,00...1,00

LOW IDLE 1

Control lever
position degrees: 18...26
Setting point w/out bumper spring

Speed rpm : 375
Rack travel in mm : 6,50

Testing:

Speed rpm : 150
Minimum rack travel: 19,00
Speed rpm : 375
Rack travel in mm : 6,20...6,80
Rack travel in mm : 3,80
Speed rpm : 440...460
Speed rpm : 600
Maximum rack travel: 1,00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 980
Rack travel in m: 9,00
2nd speed rpm : 800
Rack travel in m: 9,50...9,70
3rd speed rpm : 450
Rack travel in m: 9,90...10,20

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del. quantity cm³/ : 61,0...67,0
1000 s: (-)
Speed rpm : 550
Del. quantity cm³/ : <66,0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 1020

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 126,0...132,0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1090
Del. quantity cm³/ : 11,5...12,5
1000 s: (-)

LOW IDLE

Speed rpm : 375

Del. quantity cm³/ : 12,5...16,5
1000 s: (-)

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 f24
Edition : 04.08.89
Replaces : -
Test oil : ISO-4113
Combination no. : 0 400 876 157
Injection pump
Pump designation : PES6A85D42OLS2264
Governor
Governor design. : RSV375...1100A2B517D
R

Customer-spec. information
Customer : CASE

Engine : A 504 BD

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : WS 187P (CASE)
Inlet press., bar : 1.25
Test nozzle holder
assembly : 0 681 343 009
Opening
pressure, bar : 172...175
Test lines : 9 681 230 706
Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
: (2,10...2,30)
Rack travel in mm : 9,00...12,00
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000
Rack travel in mm : 9,00
Del. quantity cm³/ : 4,15...4,65
100 s : (-)
Spread cm³ : 0,4
100 s : (-)
2nd speed rpm : 1000
Rack travel in mm : 12,00
Del. quantity cm³/ : 7,25...8,05
100 s : (-)
3rd speed rpm : 200
Rack travel in mm : 6,00
Del. quantity cm³/ : 0,95...1,75
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Del. quantity : 82,5...84,5
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 39...47

Testing:
1st rack travel in: 7,10
Speed rpm : 1165...1195
2nd rack travel in: 2,90
Speed rpm : 1235...1265
4th rack travel in: 1320
Speed rpm : 0,30...1,00

LOW IDLE 1

Control lever
position degrees: 17...25
Setting point w/out bumper spring

Speed rpm : 375
Rack travel in mm : 7,50

Testing:

Speed rpm : 150
Minimum rack trave: 19,00
Speed rpm : 375
Rack travel in mm : 7,20...7,80
Rack travel in mm : 4,65
Speed rpm : 440...460
Speed rpm : 600
Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100
Rack travel in m: 9,00
2nd speed rpm : 800
Rack travel in m: 9,60...9,80
3rd speed rpm : 400
Rack travel in m: 9,60...9,90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 850
Del.quantity cm³/ : 90,0...93,0
1000 s: (-)
Speed rpm : 750
Del.quantity cm³/ : <93,0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 1140...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 124,0...134,0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1200
Del.quantity cm³/ : 14,5...22,5
1000 s: (-)

LOW IDLE

Speed rpm : 375

Del.quantity cm³/ : 18,5...22,5
1000 s: (-)

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 f 4
Edition : 07.08.89
Replaces : -
Test oil : ISO-4113
Combination no. : 0 400 876 158
Injection pump
Pump designation : PES6A90D42ORS2264
Governor
Governor design. : RSV375...1050A2B567D
R

Customer-spec. information
Customer : CASE

Engine : A-451 BDT

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : WS 187P (CASE)
Inlet press., bar : 1.25
Test nozzle holder
assembly : 0 681 343 009
Opening
pressure, bar : 172...175
Test lines : 9 681 230 706
Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
 : (2,10...2,30)
Rack travel in mm : 9,00...12,00
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000
Rack travel in mm : 9,00
Del. quantity cm³/ : 4,6...5,1
100 s : (-)
Spread cm³ : 0,5
100 s : (-)
2nd speed rpm : 1000
Rack travel in mm : 12,00
Del. quantity cm³/ : 8,4...9,4
100 s : (-)
3rd speed rpm : 200
Rack travel in mm : 9,00
Del. quantity cm³/ : 2,7...3,6
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1050
Del. quantity : 95,5...97,5
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 35...43

Testing:
1st rack travel in: 12,10
Speed rpm : 1075...1205
2nd rack travel in: 5,40
Speed rpm : 1135...1165
4th rack travel in: 1260
Speed rpm : 0,00...1,00

LOW IDLE 1

Control lever
position degrees: 14...22
Setting point w/out bumper spring

Speed rpm : 375
Rack travel in mm : 7,40

Del. quantity cm³/ : 15,25...19,25
1000 s : (-)

Testing:

Speed rpm : 150
Minimum rack trave: 19,00
Speed rpm : 375
Rack travel in mm : 7,10...7,70
Rack travel in mm : 4,15
Speed rpm : 440...460
Speed rpm : 580
Maximum rack trave: 1,00

Remarks:

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 9,00
2nd speed rpm : 900
Rack travel in m: 9,10...9,30
3rd speed rpm : 500
Rack travel in m: 9,30...9,60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del. quantity cm³/ : 99,0...103,0
1000 s : (-)
Speed rpm : 650
Del. quantity cm³/ : <102,0
1000 s : (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 1090...1105

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 124,0...134,0
1000 s : (-)

HIGH IDLE

1st version

Speed rpm : 1150
Del. quantity cm³/ : 8,0...18,0
1000 s : (-)

LOW IDLE

Speed rpm : 375

K03

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 f 5
 Edition : 31.07.89
 Replaces : -
 Test oil : ISO 4113
 Combination no. : 0 400 876 159
 Injection pump
 Pump designation : PES6A85D42QLS2264
 Governor
 Governor design. : RSV375...1050A2B521D
 R

Customer-spec. information
 Customer : CASE

Engine : A-451 BD

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : WS 187P
 Inlet press., bar : 1.5
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test lines : 9 681 230 706
 Outside diameter
 x Wall thickness
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _ _ _

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
 : (2,10...2,30)
 Rack travel in mm : 9,00...12,00
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000
 Rack travel in mm : 9,00
 Del. quantity cm³/ : 4,35...4,55
 100 s : (-)
 2nd speed rpm : 200
 Rack travel in mm : 6,00
 Del. quantity cm³/ : 1.1...1.7
 100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0,30...0,70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1050
 Del. quantity : 76,5...77,5
 1000 : (75,5...79,5)

RATED SPEED

1st version
 Control lever
 position degrees: 36...44

Testing:
 1st rack travel in: 11,75
 Speed rpm : 1090...1105
 2nd rack travel in: 3,20
 Speed rpm : 1165...1195
 4th rack travel in: 1280
 Speed rpm : 0,20...1,20

LOW IDLE 1

Control lever
 position degrees: 16...24
 Setting point w/out bumper spring
 Speed rpm : 375
 Rack travel in mm : 7,50

Testing:
 Speed rpm : 150
 Minimum rack travel: 19,00
 Speed rpm : 375
 Rack travel in mm : 7,40...7,60

Rack travel in mm : 2,35
Speed rpm : 470...490
Speed rpm : 600
Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050
Rack travel in m: 9,00
2nd speed rpm : 800
Rack travel in m: 9,50...9,70
3rd speed rpm : 500
Rack travel in m: 9,70...10,00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del.quantity cm3/ : 83,0...86,0
1000 s: (82,0...89,0)
Speed rpm : 550
Del.quantity cm3/ : <85,5
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 1090...1105

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 124,0...134,0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1150
Del.quantity cm3/ : 8,5...17,5
1000 s: (-)

LOW IDLE

Speed rpm : 375
Del.quantity cm3/ : 15,5...19,5
1000 s: (-)

Remarks:

APPLICATION

Tractor (tractor engines)

K05

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 f 2
 Edition : 07.80.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 876 161
 Injection pump
 Pump designation : PES6A85D420LS2264
 Governor
 Governor design. : RSV375...1100A2B6000
 R

Customer-spec. information
 Customer : CASE

Engine : A-504 BD

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
 x Wall thickness
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
 : (2,10...2,30)
 Rack travel in mm : 9,00...12,00
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000

 Rack travel in mm : 9,00

 Del. quantity cm³/ : 4,15...4,55

 100 s : (-)

 Spread cm³ : 0,4

 100 s : (-)

 2nd speed rpm : 1000
 Rack travel in mm : 12,00
 Del. quantity cm³/ : 7,25...8,05
 100 s : (-)
 3rd speed rpm : 200
 Rack travel in mm : 6,00
 Del. quantity cm³/ : 0,95...1,75
 100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0,30...0,70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1080
 Del. quantity : 80,5...84,5
 1000 : (-)

RATED SPEED

1st version
 Control lever
 position degrees: 14...22

Testing:
 1st rack travel in: 12,50
 Speed rpm : 1110...1130
 2nd rack travel in: 2.80
 Speed rpm : 1245...1265
 4th rack travel in: 1320
 Speed rpm : 0,00...1,00

LOW IDLE 1

Control lever
 position degrees: 18...26
 Setting point w/out bumper spring

Speed rpm : 375
Rack travel in mm : 7,50

Testing:

Speed rpm : 150
Minimum rack trave: 19,00
Speed rpm : 375
Rack travel in mm : 7,20...7,80
Speed rpm : 600
Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1080
Rack travel in m: 9,00
2nd speed rpm : 800
Rack travel in m: 9,60...9,80
3rd speed rpm : 400
Rack travel in m: 9,60...9,90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 850
Del. quantity cm³/ : 90,0...93,0
1000 s: (-)
Speed rpm : 750
Del. quantity cm³/ : <93,0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 8,00
Speed rpm : 1120

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 126,0...132,0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1200
Del. quantity cm³/ : 14,5...22,5
1000 s: (-)

LOW IDLE

Speed rpm : 375
Del. quantity cm³/ : 18,5...22,5
1000 s: (-)

Remarks:

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

K07

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 f 6
Edition : 31.07.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 400 876 164

Injection pump
Pump designation : PES6A85D42QLS2264
Governor
Governor design. : RSV375...1100A2B605D
R

Customer-spec. information
Customer : CASE

Engine : A-401 BD

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : WS 187P

Inlet press., bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 9 681 2300 706

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
: (2,10...2,30)
Rack travel in mm : 9,00...12,00
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00

Del. quantity cm³/ : 4,35...4,55

100 s: (-)

2nd speed rpm : 2000

Rack travel in mm : 6,00

Del. quantity cm³/ : 1,15...1,75

100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del. quantity : 61,0...62,0

1000 : (60,0...63,0)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 10,30

Speed rpm : 1140...1160

2nd rack travel in: 4,90

Speed rpm : 1185...1215

4th rack travel in: 1300

Speed rpm : 0,20...1,20

LOW IDLE 1

Control lever

position degrees: 20...28

Setting point w/out bumper spring

Speed rpm : 375

Rack travel in mm : 6,50

Testing:

Speed rpm : 150

Minimum rack travel: 19,00

Speed rpm : 375

Rack travel in mm : 6,40...6,60

Rack travel in mm : 2,75
Speed rpm : 470...490
Speed rpm : 600
Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 9,00
2nd speed rpm : 800
Rack travel in m: 9,90...10,10
3rd speed rpm : 450
Rack travel in m: 10,40...10,70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm3/ : 73,0...76,0
1000 s: (72,0...77,0)
Speed rpm : 500
Del.quantity cm3/ : <75,0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 1140...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 129,0...139,0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1200
Del.quantity cm3/ : 6,5...14,5
1000 s: (-)

LOW IDLE

Speed rpm : 375
Del.quantity cm3/ : 12,5...16,5
1000 s: (-)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 o 1
Edition : 24.08.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 400 876 175

Injection pump
Pump designation : PES6A90D42QLS2354
Governor
Governor design. : RSV375...1050A2B567D
R

Customer-spec. information

Customer : CASE

Engine : A-504 BDT

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 9 681 273 009

Inlet press., bar : 1.0

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
 : (2,10...2,30)
Rack travel in mm : 9,00...12,00
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00

Del. quantity cm³/ : 5,0...5,3

100 s: (-)

2nd speed rpm : 200
Rack travel in mm : 6,00
Del. quantity cm³/ : 0,8...1,4
100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1050
Del. quantity : 98,0...99,0
1000 : (-)
Spread cm³ : 3,0
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 38...46

Testing:
1st rack travel in: 11,50
Speed rpm : 1090...1105
2nd rack travel in: 2,00
Speed rpm : 1185...1215
4th rack travel in: 1280
Speed rpm : 0,20...1,20

LOW IDLE 1

Control lever
position degrees: 14...22
Setting point w/out bumper spring
Speed rpm : 375
Rack travel in mm : 6,90

Testing:
Speed rpm : 150
Minimum rack travel: 19,00

Speed rpm : 375
Rack travel in mm : 7,30...7,50
Rack travel in mm : 2,50
Speed rpm : 470...490
Speed rpm : 600
Maximum rack trave: 1,00

Del.quantity cm³/ : 1,6...2,0
1000 s: (-)

Remarks:

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050
Rack travel in m: 12,50
2nd speed rpm : 900
Rack travel in m: 12,70...12,80
3rd speed rpm : 500
Rack travel in m: 12,80...13,10

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm³/ : 101,0...105,0
1000 s: (-)
Spread cm³ : 3,2
1000 s: (-)
Speed rpm : 650
Del.quantity cm³/ : <104,0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 1090...1105

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 127,0...133,0
1000 s: (-)
Rack travel in mm : 16,00...16,20

HIGH IDLE

1st version

Speed rpm : 1150
Rack travel in mm : 5,40
Del.quantity cm³/ : 11,10...11,90
1000 s: (-)
Spread cm³ : 4,0
1000 s: (-)

LOW IDLE

Speed rpm : 375
Rack travel in mm : 7,40

K11

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 f25
Edition : 04.08.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 400 876 183

Injection pump
Pump designation : PES6A85D42OLS2264
Governor
Governor design. : RSV375...1100A2B636D
R

Customer-spec. information
Customer : CASE

Engine : A-504 BD

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
: (2,10...2,30)
Rack travel in mm : 9,00...12,00
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00

Del. quantity cm³/ : 4,15...4,55

100 s : (-)

Spread cm³ : 0,3

100 s : (-)

2nd speed rpm : 1000
Rack travel in mm : 12,00
Del. quantity cm³/ : 7,25...8,05
100 s : (-)
3rd speed rpm : 200
Rack travel in mm : 6,00
Del. quantity cm³/ : 0,95...1,75
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Del. quantity : 92,5...94,5
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 43...51

Testing:
1st rack travel in: 12,90
Speed rpm : 1125...1155
2nd rack travel in: 5,10
Speed rpm : 1185...1215
4th rack travel in: 1260
Speed rpm : 0,30...1,50

LOW IDLE 1

Control lever
position degrees: 19...27
Setting point w/out bumper spring

Speed rpm : 375
Rack travel in mm : 7,90

Del. quantity cm³/ : 18,5...22,5
1000 s: (-)

Testing:

Speed rpm : 150
Minimum rack trave: 19,00
Speed rpm : 375
Rack travel in mm : 7,60...8,20
Rack travel in mm : 5,3
Speed rpm : 440...460
Speed rpm : 620
Maximum rack trave: 1,50

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 9,00
2nd speed rpm : 900
Rack travel in m: 9,50...9,70
3rd speed rpm : 600
Rack travel in m: 9,70...10,00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del. quantity cm³/ : 102,5...107,5
1000 s: (-)
Speed rpm : 650
Del. quantity cm³/ : <105,5
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 1140...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 125,0...133,0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1200
Del. quantity cm³/ : 12,5...20,5
1000 s: (-)

LOW IDLE

Speed rpm : 375

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 6,6 f 2
Edition : 31.07.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 400 876 187

Injection pump
Pump designation : PES6A95D41ORS2380
Governor
Governor design. : RSV400...1100A2B648D
L

Customer-spec. information
Customer : JOHN DEERE

Engine : 6404 T

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 413 385 007

Inlet press., bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 1,90...2,00
: (1,85...2,05)
Rack travel in mm : 9,00...12,00
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00

Del. quantity cm³/ : 7,6...8,0

100 s : (-)

2nd speed rpm : 200
Rack travel in mm : 6,00
Del. quantity cm³/ : 0,6...1,4
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Aneroid pressure h: 700
Del. quantity : 88,0...89,0
1000 : (86,0...91,0)

RATED SPEED

1st version
Control lever
position degrees: 40...48

Testing:
1st rack travel in: 16.00
Speed rpm : 1090...1110
2nd rack travel in: 2.30
Speed rpm : 1285...1315
4th rack travel in: 1400
Speed rpm : 0.20...1.20

LOW IDLE 1

Control lever
position degrees: 17...25
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5,60

Testing:
Speed rpm : 100
Minimum rack travel: 19,00
Speed rpm : 330

Rack travel in mm : 9,60...12,00
Rack travel in mm : 2,80
Speed rpm : 530...570
Speed rpm : 750
Maximum rack travel: 1,00
Speed rpm : 400
Rack travel in mm : 5,60

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100
Rack travel in m: 9,00
2nd speed rpm : 900
Rack travel in m: 9,30...9,40
3rd speed rpm : 750
Rack travel in m: 9,70...10,00
4th speed rpm : 450
Rack travel in m: 9,70...10,00

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 550
Pressure hPa : 160
Rack travel mm : *

Measurement

Speed 1/min : 550

1st pressure hPa : 400
Rack travel in m: **

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 750
Del.quantity cm3/ : 100,0...102,0
1000 s: (98,0...104,0)

Aneroid pressure h: -
Speed rpm : 550
Del.quantity cm3/ : 66,0...72,0
1000 s: (64,0...74,0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 159,0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1200
Del.quantity cm3/ : 18,5...24,5
1000 s: (-)

LOW IDLE

Speed rpm : 400
Del.quantity cm3/ : 12,0...16,0
1000 s: (-)

Remarks:

* Start of LDA (manifold-pressure
compensator) movement

** Ende der LDA-Bewegung
Start-of-delivery mark at 14° angular
displacement of the cam after start of
delivery of cylinder 1

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 f 7
 Edition : 31.07.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 876 191
 Injection pump
 Pump designation : PES6A85D420LS2264
 Governor
 Governor design. : RSV375...1050A2B667D
 R

Customer-spec. information
 Customer : CASE

Engine : A 451 BD

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : WS 187P (CASE)
 Inlet press., bar : 1.5
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test lines : 9 681 750 706
 Outside diameter
 x Wall thickness
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
 : (2,10...2,30)
 Rack travel in mm : 9,00...12,00
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000

 Rack travel in mm : 9,00

 Del. quantity cm³/ : 4,35...4,55

 100 s : (-)

 2nd speed rpm : 200
 Rack travel in mm : 6,00
 Del. quantity cm³/ : 1,15...1,75
 100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0,30...0,70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1050
 Del. quantity : 68,0...69,0
 1000 : (67,0...70,0)

RATED SPEED

1st version
 Control lever
 position degrees: 41...49

Testing:
 1st rack travel in: 8,00
 Speed rpm : 1090...1105
 2nd rack travel in: 5,80
 Speed rpm : 1125...1155
 4th rack travel in: 1260
 Speed rpm : 0,20...1,20

LOW IDLE 1

Control lever
 position degrees: 18...26
 Setting point w/out bumper spring
 Speed rpm : 375
 Rack travel in mm : 6,60

Testing:
 Speed rpm : 150
 Minimum rack travel: 19,00
 Speed rpm : 375
 Rack travel in mm : 6,50...6,70

Speed rpm : 600
Maximum rack travel: 1,00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050

Rack travel in m: 9,00

2nd speed rpm : 800

Rack travel in m: 9,50...9,70

3rd speed rpm : 500

Rack travel in m: 9,80...10,20

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650

Del. quantity cm³/ : 78,0...81,0

1000 s: (77,0...82,0)

Speed rpm : 550

Del. quantity cm³/ : <80,0

1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00

Speed rpm : 1090...1105

STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm³/ : 124,0...134,0

1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1150

Del. quantity cm³/ : 6,5...14,5

1000 s: (-)

LOW IDLE

Speed rpm : 375

Del. quantity cm³/ : 12,5...16,5

1000 s: (-)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 6,6 f 3
Edition : 31.07.89
Replaces : -
Test oil : ISO-4113
Combination no. : 0 400 876 194
Injection pump
Pump designation : PES6A95D41ORS2380
Governor
Governor design. : RSV600...1100A2B687L

Customer-spec. information
Customer : JOHN DEERE

Engine : 6404 T

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : 1 413 385 007

Inlet press., bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY

Prestroke mm : 1,90...2,00
 : (1,85...2,05)
Rack travel in mm : 9,00...12,00
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0,50 (0,75)

K18

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00

Del. quantity cm³/ : 7,6...8,0

100 s: (-)

2nd speed rpm : 200
Rack travel in mm : 6,00
Del. quantity cm³/ : 0,6...1,4
100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Del. quantity : 85,5...87,5
1000 : (83,5...89,5)

RATED SPEED

1st version
Control lever
position degrees: 36...44

Testing:
1st rack travel in: 8,60
Speed rpm : 1130...1150
2nd rack travel in: 2,70
Speed rpm : 1205...1235
4th rack travel in: 1300
Speed rpm : 0,30...1,00

LOW IDLE 1

Control lever
position degrees: 21...29
Setting point w/out bumper spring
Speed rpm : 600
Rack travel in mm : 5,10

Testing:
Speed rpm : 200
Minimum rack travel: 19,00
Speed rpm : 600
Rack travel in mm : 5,00...5,20

Speed rpm : 850
Maximum rack travel: 1,00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 9,00

2nd speed rpm : 500

Rack travel in m: 9,00

3rd speed rpm : 400

Rack travel in m: 9,70...10,30

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00

Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm³/ : 159,0...179,0

1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1175

Del. quantity cm³/ : 18,5...24,5

1000 s: (-)

LOW IDLE

Speed rpm : 600

Del. quantity cm³/ : 12,0...17,0

1000 s: (-)

Remarks:

Start-of-delivery mark at 14° angular displacement of the cam after start of delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 6,6 f 4
Edition : 31.07.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 400 876 206

Injection pump
Pump designation : PES6A95D41ORS2380
Governor
Governor design. : RSV400...1100A7B701L

Customer-spec. information
Customer : JOHN DEERE

Engine : 6404 T

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Inlet press., bar : 1.0

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Prestroke mm : 1,90...2,00
 : (1,85...2,05)

Rack travel in mm : 9,00...12,00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

K20

1st speed rpm : 1000

Rack travel in mm : 9,00

Del. quantity cm³/ : 7,6...8,0

100 s : (-)

2nd speed rpm : 200
Rack travel in mm : 6,00
Del. quantity cm³/ : 0,6...1,4
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1080
Del. quantity : 77,5...87,5
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 66...74

Testing:
1st rack travel in: 11.30
Speed rpm : 1090...1110
2nd rack travel in: 4,00
Speed rpm : 1145...1175
4th rack travel in: 1250
Speed rpm : 0,20...1,20

LOW IDLE 1

Control lever
position degrees: 25...33
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 6,00

Testing:
Speed rpm : 150
Minimum rack travel: 19,00
Speed rpm : 400
Rack travel in mm : 5,90...6,10
Speed rpm : 650
Maximum rack travel: 1,00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1080
Rack travel in m: 9,00
2nd speed rpm : 400
Rack travel in m: 9,00
3rd speed rpm : 300
Rack travel in m: 10,10...10,80

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 1100...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 159,0...179,0
1000 s: (-)

HIGH IDLE

1st version
Speed rpm : 1150
Del.quantity cm³/ : 11,5...17,5
1000 s: (-)

LOW IDLE

Speed rpm : 400
Del.quantity cm³/ : 12,0...16,0
1000 s: (-)

Remarks:

Start-of-delivery mark at 14° angular displacement of the cam after start of delivery of cylinder 1 with control-rod travel = 10.50 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 f26
 Edition : 04.08.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 876 209
 Injection pump
 Pump designation : PES6A85D42OLS2264
 Governor
 Governor design. : RSV375...875A7B696R

Customer-spec. information
 Customer : CASE

Engine : A-504 BD

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
 x Wall thickness
 x Length mm : 6,00x2,00x600

(A) Injection pump settings values
 Insp. values in parentheses
 Set equal delivery ~~point~~
 per values

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
 : (2,10...2,30)
 Rack travel in mm : 9,00...12,00
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000

 Rack travel in mm : 9,00

 Del. quantity cm3/ : 4,15...4,55

 100 s: (-)

 Spread cm3 : 0,4

 100 s: (-)

 2nd speed rpm : 1000
 Rack travel in mm : 12,00
 Del. quantity cm3/ : 7,25...8,05
 100 s: (-)
 3rd speed rpm : 200
 Rack travel in mm : 6,00
 Del. quantity cm3/ : 0,95...1,75
 100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0,30...C,70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 875
 Del. quantity : 98,5...101,5
 1000 : (-)

RATED SPEED

1st version
 Control lever
 position degrees: 54...62

Testing:
 1st rack travel in: 7,20
 Speed rpm : 915...945
 2nd rack travel in: 3,90
 Speed rpm : 945...975
 4th rack travel in: 1030
 Speed rpm : 0,30...1,00

LOW IDLE 1

Control lever
 position degrees: 26...34
 Setting point w/out bumper spring
 Speed rpm : 375
 Rack travel in mm : 8,00

Testing:

Speed rpm : 150
Minimum rack trave: 19,00
Speed rpm : 375
Rack travel in mm : 7,70...8,30
Rack travel in mm : 3,35
Speed rpm : 440...460
Speed rpm : 550
Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 875
Rack travel in m: 9,00
2nd speed rpm : 350
Rack travel in m: 9,20...9,80

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 900
Del.quantity cm3/ : 70,5...93,5
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 880...895

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 126,0...132,0
1000 s: (-)

LOW IDLE

Speed rpm : 375
Del.quantity cm3/ : 15,5...23,5
1000 s: (-)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 5,7 g 18
Edition : 30.05.88
Replaces : 25.3.88
Test oil : ISO-4113

Combination no. : 0 400 876 218

Injection pump
Pump designation : PES6A90D41ORS2293
EP type number : 0 410 896 031
Governor
Governor design. : RSV350...1400AOC1080
L
Governor no. : 0 420 232 408

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM 352

1st version kW : 92.0
Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.15...2.25
: (2.10...2.30)

Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 9.70...9.80

Del. quantity cm³/ : 6.3...6.4

100 s: (6.1...6.6)

Spread cm³ : 0.3

100 s: (0.4)

2nd speed rpm : 350.0

Rack travel in mm : 6.6...7.2

Del. quantity cm³/ : 1.0...1.2

100 s: (0.8...1.4)

Spread cm³ : 0.2

100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 3.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Del. quantity : 63.0...64.0

1000 : (61.0...66.0)

Spread cm³ : 3.00

1000 : (4.50)

RATED SPEED

1st version

Control lever

position degrees: 68...76

Testing:

1st rack travel in: 8.70

Speed rpm : 1440...1445

2nd rack travel in: 4.00

Speed rpm : 1473...1486

3rd rack travel in: 4.00

Speed rpm : 1510...1540
4th rack travel in: 1570
Speed rpm : 0.30...1.40
5th rack travel in: 1445...1455
Speed rpm : 8.70

LOW IDLE 1

Control lever
position degrees: -3
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.80

Testing:

Speed rpm : 100
Minimum rack trave: 19.50
Speed rpm : 350
Rack travel in mm : 6.70...6.90
Rack travel in mm : 2.00
Speed rpm : 450...510

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1400
Rack travel in m: 9.70...9.80
2nd speed rpm : 600
Rack travel in m: 9.90...10.10

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm3/ : 51.0...53.0
1000 s: (49.0...55.0)
Speed rpm : 850
Del.quantity cm3/ : 56.0...58.0
1000 s: (53.5...60.5)

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 78.0...88.0
1000 s: (75.0...91.0)
Rack travel in mm : 15.00...15.40

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.60...7.20
Del.quantity cm3/ : 10.0...12.0
1000 s: (8.0...14.0)
Spread cm3 : 2.50
1000 s: (4.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 n
Edition : 31.07.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 400 876 222

Injection pump
Pump designation : PES6A85D420LS2460
Governor
Governor design. : RSV375...1100A2B517D
R

Customer-spec. information
Customer : CASE

Engine : A 504 BDT

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: WS 187P

Inlet press., bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
: (2,10...2,30)
Rack travel in mm : 9,00...12,00
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1100
Rack travel in mm : 12,10
Del. quantity cm³/ : 8,4...8,5
100 s : (8,3...8,7)
Spread cm³ : 0,3
100 s : (-)

2nd speed rpm : 375
Rack travel in mm : 7,50
Del. quantity cm³/ : 1,7...2,4
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Del. quantity : 83,5...85,0
1000 : (82,5...87,0)
Spread cm³ : 3,0
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 39...47

Testing:
1st rack travel in: 11,10
Speed rpm : 1140...1160
2nd rack travel in: 2,80
Speed rpm : 1235...1265
4th rack travel in: 1320
Speed rpm : 0,20...1,20

LOW IDLE 1

Control lever
position degrees: 17...25
Setting point w/out bumper spring
Speed rpm : 375
Rack travel in mm : 7,50

Remarks:

Testing:

Speed rpm : 150
Minimum rack trave: 19,00
Speed rpm : 375
Rack travel in mm : 7,30...7,70
Rack travel in mm : 4,65
Speed rpm : 430...470
Speed rpm : 650
Maximum rack trave: <0,00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 12,10
2nd speed rpm : 950
Rack travel in m: 12,50...12,60
3rd speed rpm : 800
Rack travel in m: 12,90...13,10

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 850
Del.quantity cm3/ : 89,5...94,0
1000 s: (88,5...95,0)
Speed rpm : 750
Del.quantity cm3/ : <93,0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11,10
Speed rpm : 1140...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 125,0...135,0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1200
Del.quantity cm3/ : 14,0...21,0
1000 s: (-)

LOW IDLE

Speed rpm : 375
Del.quantity cm3/ : 17,0...24,0
1000 s: (-)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 n 4
Edition : 28.08.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 400 876 223

Injection pump
Pump designation : PES6A85D420LS2460
EP type number : 0 410 886 912
Governor
Governor design. : RSV375...1050A2B521D
R
Governor no. : 0 420 235 150

Customer-spec. information
Customer : CASE

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 9 681 273 009

Inlet press., bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
 : (2,10...2,30)
Rack travel in mm : 9,00...12,00
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.35...11.45

Del. quantity cm³/ : 7,6...7.7

100 s : (-)

Spread cm³ : 0,3

100 s : (-)

2nd speed rpm : 375
Rack travel in mm : 7,50
Del. quantity cm³/ : 1,4...2,0
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1050
Del. quantity : 76,0...77,0
1000 : (-)
Spread cm³ : 3,0
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 39...47

Testing:
1st rack travel in: 10.40
Speed rpm : 1090...1105
2nd rack travel in: 3.20
Speed rpm : 1165...1195
4th rack travel in: 1280
Speed rpm : 0,20...1,20

LOW IDLE 1

Control lever
position degrees: 16...24
Setting point w/out bumper spring
Speed rpm : 375
Rack travel in mm : 7,00

Testing:

Speed rpm : 150
Minimum rack trave: 19,00
Speed rpm : 375
Rack travel in mm : 7,40...7,60
Rack travel in mm : 2,35
Speed rpm : 470...490
Speed rpm : 650
Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100
Rack travel in m: 11,40
2nd speed rpm : 800
Rack travel in m: 12,30...12,45
3rd speed rpm : 500
Rack travel in m: 12,45...12,75

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del. quantity cm³/ : 82,0...85,0
1000 s: (-)
Spread cm³ : 4.0
1000 s: (-)
Speed rpm : 550
Del. quantity cm³/ : <84,0
1000 s: (-)
Spread cm³ : 4.0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10,40
Speed rpm : 1090...1105

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 124,0...130,0
1000 s: (-)
Rack travel in mm : 17.40...17.70

HIGH IDLE

1st version

Speed rpm : 1150
Rack travel in mm : 5.10...5.30
Del. quantity cm³/ : 11,0...17,0
1000 s: (-)

Spread cm³ : 3.0
1000 s: (-)

LOW IDLE

Speed rpm : 375
Rack travel in mm : 7.40...7.60
Del. quantity cm³/ : 14,0...20,0
1000 s: (-)
Spread cm³ : 2.0
1000 s: (-)

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 n 2
 Edition : 28.08.89
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 400 876 226

Injection pump
 Pump designation : PES6A85D420LS2460
 EP type number : 0 410 886 912
 Governor
 Governor design. : RSV375...1100A2B636D
 R
 Governor no. : 0 420 235 161

Customer-spec. information
 Customer : CASE

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : WS 187P (CASE)

Inlet press., bar : 1.5

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
 x Wall thickness
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values -----

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
 : (2,10...2,30)
 Rack travel in mm : 9,00...12,00
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12,75...12,85

Del. quantity cm³/ : 9,2...9,3
 100 s : (-)

Spread cm³ : 0,3
 100 s : (-)

2nd speed rpm : 375
 Rack travel in mm : 7,90
 Del. quantity cm³/ : 1,8...2,4
 100 s : (-)

Spread cm³ : 0.2
 100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 1000
 Rack travel in mm : 0,20...1,20

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Del. quantity : 92.0...93.0
 1000 : (-)
 Spread cm³ : 3,0
 1000 : (-)

RATED SPEED

1st version
 Control lever
 position degrees: 43...51

Testing:
 1st rack travel in: 11,80
 Speed rpm : 1140...1155
 2nd rack travel in: 3,00
 Speed rpm : 1205...1235
 4th rack travel in: 1300
 Speed rpm : 0,30...1,00

LOW IDLE 1

Control lever
 position degrees: 19...27
 Setting point w/out bumper spring

Speed rpm : 375
Rack travel in mm : 7,40

Testing:

Speed rpm : 150
Minimum rack trave: 19,00
Speed rpm : 375
Rack travel in mm : 7,80...8,00
Rack travel in mm : 4,00
Speed rpm : 470...490
Speed rpm : 620
Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 12,80
2nd speed rpm : 900
Rack travel in m: 13,50...13,60
3rd speed rpm : 500
Rack travel in m: 13,75...14,05

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm3/ : 103.0...106.0
1000 s: (-)
Spread cm3 : 4.0
1000 s: (-)
Speed rpm : 650
Del.quantity cm3/ : <106.0
1000 s: (-)
Spread cm3 : 4.0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11,80
Speed rpm : 1140...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 128,0...134,0
1000 s: (-)
Rack travel in mm : 17.40....17.60

HIGH IDLE

1st version

Speed rpm : 1200
Del.quantity cm3/ : 14,0...20,0
1000 s: (-)

L03

Spread cm3 : 3.0
1000 s: (-)

LOW IDLE

Speed rpm : 375
Del.quantity cm3/ : 18,0...24,0
1000 s: (-)
Spread cm3 : 2.0
1000 s: (-)

Remarks:

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 n 3
Edition : 28.08.89
Replaces : -
Test oil : ISO-4113
Combination no. : 0 400 876 227
Injection pump
Pump designation : PES6A85D420LS2460
EP type number : 0 410 886 912
Governor
Governor design. : RSV375...1050A2B667D
R

Customer-spec. information
Customer : CASE

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : 9 681 273 009
Inlet press., bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening
pressure, bar : 172...175
Test lines : 9 681 230 706
Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
: (2,10...2,30)
Rack travel in mm : 9,00...12,00
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.00...11.10

Del. quantity cm³/ : 7,1...7,2

100 s : (-)

Spread cm³ : 0,3

100 s : (-)

2nd speed rpm : 375
Rack travel in mm : 6.70
Del. quantity cm³/ : 1.1...1.7
100 s : (-)
Spread cm³ : 0.2
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 1000
Rack travel in mm : 0,20...1,20

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1050
Del. quantity : 71,1...72,1
1000 : (-)
Spread cm³ : 3,0
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 41...49

Testing:
1st rack travel in: 10.00
Speed rpm : 1090...1105
2nd rack travel in: 2.25
Speed rpm : 1185...1215
4th rack travel in: 1260
Speed rpm : 0,20...1,20

LOW IDLE 1

Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 375
Rack travel in mm : 6.20

Testing:

Speed rpm : 150
 Minimum rack trave: 19,00
 Speed rpm : 375
 Rack travel in mm : 6,60...6,80
 Rack travel in mm : 2,60
 Speed rpm : 470...490
 Speed rpm : 600
 Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version
 1st speed rpm : 1050
 Rack travel in m: 11,00
 2nd speed rpm : 800
 Rack travel in m: 11,70...11,90
 3rd speed rpm : 500
 Rack travel in m: 12,05...12,35

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
 Del.quantity cm3/ : 82,1...85,1
 1000 s: (-)
 Spread cm3 : 4.0
 1000 s: (-)
 Speed rpm : 550
 Del.quantity cm3/ : <84,6
 1000 s: (-)
 Spread cm3 : 4.0
 1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than
 full load rack tr: 10,00
 Speed rpm : 1090...1105

STARTING FUEL DELIVERY

Speed rpm : 100
 Del.quantity cm3/ : 126,0...132,0
 1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1150
 Rack travel in mm : 4.90...5.10
 Del.quantity cm3/ : 7.5...13,3
 1000 s: (-)
 Spread cm3 : 3.0
 1000 s: (-)

LOS

LOW IDLE

Speed rpm : 375
 Rack travel in mm : 6.60...6.80
 Del.quantity cm3/ : 11,0...17,0
 1000 s: (-)
 Spread cm3 : 2.0
 1000 s: (-)

Remarks:

Adjustment without torque-control
 spring retainer with 1 mm less
 control-rod travel. Increase in
 full-load delivery with torque-control
 spring retainer.

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 n 1
 Edition : 04.08.89
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 400 876 228

Injection pump
 Pump designation : PES6A85D42OLS2460
 Governor
 Governor design. : RSV375...875A7B696R

Customer-spec. information

Customer : CASE

Engine : A-504 BD

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
 x Wall thickness
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 0,15...2,25
 : (2,10...2,30)
 Rack travel in mm : 9,00...12,00
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0,50 (0,75)

L06

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00

Del. quantity cm³/ : 4,15...4,55

100 s : (-)

Spread cm³ : 0,4

100 s : (-)

2nd speed rpm : 1000

Rack travel in mm : 12,00

Del. quantity cm³/ : 7,25...8,05

100 s : (-)

3rd speed rpm : 200

Rack travel in mm : 6,00

Del. quantity cm³/ : 0,95...1,75

100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 875

Del. quantity : 98,5...101,5

1000 : (-)

RATED SPEED

1st version

Control lever

position degrees: 54...62

Testing:

1st rack travel in: 7,20

Speed rpm : 915...945

2nd rack travel in: 3,90

Speed rpm : 945...975

4th rack travel in: 1030

Speed rpm : 0,30...1,00

LOW IDLE 1

Control lever

position degrees: 26...34

Setting point w/out bumper spring

Speed rpm : 375

Rack travel in mm : 8,00

Testing:

Speed rpm : 150
Minimum rack trave: 19,00
Speed rpm : 375
Rack travel in mm : 7,70...8,30
Rack travel in mm : 3,35
Speed rpm : 440...460
Speed rpm : 550
Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 875
Rack travel in m: 9,00
2nd speed rpm : 350
Rack travel in m: 9,20...9,80

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 900
Del.quantity cm3/ : 70,5...93,5
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 880...895

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 126,0...132,0
1000 s: (-)

LOW IDLE

Speed rpm : 375
Del.quantity cm3/ : 15,5...23,5
1000 s: (-)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 m 2
Edition : 24.08.89
Replaces : -
Test oil : ISO-4113
Combination no. : 0 400 876 229
Injection pump
Pump designation : PES6A90D42OLS2461
Governor
Governor design. : RSV375...1050A2B567D
R

Customer-spec. information
Customer : CASE

Engine : A-504 BDT

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Inlet press., bar : 1.0

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
 : (2,10...2,30)
Rack travel in mm : 9,00...12,00
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

LO8

1st speed rpm : 1050

Rack travel in mm : 12,45...12,55

Del. quantity cm³/ : 9,6...9,7

100 s : (-)

Spread cm³ : 0,3

100 s : (-)

2nd speed rpm : 375

Rack travel in mm : 7,40

Del. quantity cm³/ : 1,6...2,2

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del. quantity : 96,0...97,0

1000 : (-)

Spread cm³ : 3,0

1000 : (-)

RATED SPEED

1st version

Control lever

position degrees: 38...46

Testing:

1st rack travel in: 11,50

Speed rpm : 1090...1105

2nd rack travel in: 2,00

Speed rpm : 1185...1215

4th rack travel in: 1280

Speed rpm : 0,20...1,20

LOW IDLE 1

Control lever

position degrees: 14...22

Setting point w/out bumper spring

Speed rpm : 375

Rack travel in mm : 6,90

Testing:

Speed rpm : 150

Minimum rack travel: 19,00

Speed rpm : 375

Rack travel in mm : 7,30...7,50
Rack travel in mm : 2,50
Speed rpm : 470...490
Speed rpm : 600
Maximum rack trave: 1,00

Rack travel in mm : 7,40
Del.quantity cm³/ : 15,6...21,6
1000 s: (-)
Spread cm³ : 2,0
1000 s: (-)

Remarks:

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 12,50
2nd speed rpm : 900
Rack travel in m: 12,70...12,80
3rd speed rpm : 500
Rack travel in m: 12,80...13,10

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del.quantity cm³/ : 99,0...102,0
1000 s: (-)
Spread cm³ : 4,0
1000 s: (-)
Speed rpm : 650
Del.quantity cm³/ : <102,0
1000 s: (-)
Spread cm³ : 4,0
1000 s: (-)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11,50
Speed rpm : 1090...1105

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 121,0...127,0
1000 s: (-)
Rack travel in mm : 16,00...16,20

HIGH IDLE

1st version
Speed rpm : 1150
Rack travel in mm : 5,40
Del.quantity cm³/ : 12,0...18,0
1000 s: (-)
Spread cm³ : 3,0
1000 s: (-)

LOW IDLE

Speed rpm : 375

L09

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 m 1
 Edition : 31.07.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 876 230
 Injection pump
 Pump designation : PES6A90D42OLS2461
 Governor
 Governor design. : RSV375...1050A2B710D
 R

Customer-spec. information
 Customer : CASE

Engine : A 504 BDT

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : WS 187P

Inlet press., bar : 1.5

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
 x Wall thickness
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
 : (2,10...2,30)
 Rack travel in mm : 9,00...12,00
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 12,00

Del. quantity cm³/ : 9,0...9,2

100 s : (8,8...9,4)

Spread cm³ : 0,3

100 s : (-)

2nd speed rpm : 375

Rack travel in mm : 7,80

Del. quantity cm³/ : 1,75...2,35

100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0,30...0,70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del. quantity : 90,0...92,0

1000 : (88,0...94,0)

Spread cm³ : 3,0

1000 : (-)

RATED SPEED

1st version

Control lever

position degrees: 36...44

Testing:

1st rack travel in: 11,00

Speed rpm : 1090...1105

2nd rack travel in: 2,90

Speed rpm : 1165...1195

4th rack travel in: 1250

Speed rpm : 0,20...1,20

LOW IDLE 1

Control lever

position degrees: 14...22

Setting point w/out bumper spring

Speed rpm : 375

Rack travel in mm : 7,80

Remarks:

Testing:

Speed rpm : 150
Minimum rack trave: 19,00
Speed rpm : 375
Rack travel in mm : 7,60...8,00
Rack travel in mm : 4,40
Speed rpm : 430...470
Speed rpm : 600
Maximum rack trave: 1,20

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 12,00
2nd speed rpm : 800
Rack travel in m: 12,10...12,30
3rd speed rpm : 500
Rack travel in m: 12,10...12,30

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del. quantity cm³/ : 89,0...93,0
1000 s: (87,0...95,0)
Speed rpm : 650
Del. quantity cm³/ : <92,0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 11,00
Speed rpm : 1090...1105

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 135,0...145,0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1150
Del. quantity cm³/ : 13,5...19,5
1000 s: (-)

LOW IDLE

Speed rpm : 375
Del. quantity cm³/ : 17,5...23,5
1000 s: (-)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 6,6 f 5
Edition : 31.07.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 400 876 237

Injection pump
Pump designation : PES6A95D41ORS2380
Governor
Governor design. : RSV600...1100A2B747L

Customer-spec. information
Customer : JOHN DEERE

Engine : 6404 T

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Inlet press., bar : 1.0

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 1,90...2,00
 : (1,85...2,05)

Rack travel in mm : 9,00...12,00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0,50 (0,75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00

Del. quantity cm³/ : 7,6...8,0

100 s : (-)

2nd speed rpm : 200
Rack travel in mm : 6,00
Del. quantity cm³/ : 0,6...1,4
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Del. quantity : 78,5...82,5
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 40...48

Testing:
1st rack travel in: 8,0
Speed rpm : 1140...1150
2nd rack travel in: 2,80
Speed rpm : 1265...1295
4th rack travel in: 1400
Speed rpm : 0,20...1,20

LOW IDLE 1

Control lever
position degrees: 16...24
Setting point w/out bumper spring
Speed rpm : 600
Rack travel in mm : 5,60

Testing:
Speed rpm : 200
Minimum rack travel: 19,00
Speed rpm : 400
Rack travel in mm : 5,50...5,70
Speed rpm : 700
Maximum rack travel: 1,00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 500

Rack travel in m: 9,00

2nd speed rpm : 400

Rack travel in m: 9,90...10,50

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00

Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm³/ : 159,0...179,0

1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1170

Del. quantity cm³/ : 18,5...24,5

1000 s: (-)

LOW IDLE

Speed rpm : 600

Del. quantity cm³/ : 12,0...16,0

1000 s: (-)

Remarks:

Start-of-delivery mark at 14° angular displacement of the cam after start of delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 6,6 h
Edition : 25.08.89
Replaces : -
Test oil : ISO-4113
Combination no. : 0 400 876 246
Injection pump
Pump designation : PES6A95D41ORS2500
EP type number : 0 410 896 951
Governor
Governor design. : RSV600...1100A2B771L
Governor no. : 0 420 232 208

Customer-spec. information
Customer : JOHN DEERE

Engine : 6404 TH

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : 1 417 413 025

Inlet press., bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY

Prestroke mm : 1,85...1,95
 : (1,80...2,00)
Rack travel in mm : 9,00...12,00
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1100
Rack travel in mm : 9,75...9,85

Del. quantity cm³/ : 8,8...9,0
100 s : (-)

Spread cm³ : 0,3
100 s : (-)

2nd speed rpm : 600
Rack travel in mm : 5,10
Del. quantity cm³/ : 1,2...1,6
100 s : (-)
Spread cm³ : 0,3
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...1,00

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Del. quantity : 88,0...90,0
1000 : (-)
Spread cm³ : 3,0
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 40...48

Testing:
1st rack travel in: 8,80
Speed rpm : 1145...1155
2nd rack travel in: 6,00
Speed rpm : 1185...1215

LOW IDLE 1

Control lever
position degrees: 21...29
Setting point w/out bumper spring
Speed rpm : 600
Rack travel in mm : 4,60

Testing:

Speed rpm : 100
Minimum rack trave: 19,00
Speed rpm : 600
Rack travel in mm : 5,00...5,20
Rack travel in mm : 2,00
Speed rpm : 670...730

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 8,80
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 160,0...180,0
1000 s: (-)
Rack travel in mm : 19,00...21,00

HIGH IDLE

1st version
Speed rpm : 1200
Rack travel in mm : 6,00
Del.quantity cm³/ : 20,0...30,0
1000 s: (-)
Spread cm³ : 4,0
1000 s: (-)

LOW IDLE

Speed rpm : 600
Rack travel in mm : 5,10
Del.quantity cm³/ : 12,0...16,0
1000 s: (-)

Remarks:

Start-of-delivery mark at 14° angular displacement of the cam after start of delivery of cylinder 1 with control-rod travel = 10.50 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 6,6 h 1
Edition : 25.08.89
Replaces : -
Test oil : ISO-4113
Combination no. : 0 40 876 247
Injection pump
Pump designation : PES6A95D41ORS2500
EP type number : 0 410 896 946
Governor
Governor design. : RSV400...1100A7B772L
Governor no. : 0 420 232 209

Customer-spec. information
Customer : JOHN DEERE

Engine : 6404 T

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : 1 417 413 025
Inlet press., bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening
pressure, bar : 172...175
Test lines : 9 681 230 706
Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 1,85...1,95
 : (1,80...2,00)
Rack travel in mm : 9,00...12,00
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0,50 (0,75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1080
Rack travel in mm : 10,00
Del. quantity cm³/ : 8,9...9,1

100 s : (-)

Spread cm³ : 0,3

100 s : (-)

2nd speed rpm : 400
Rack travel in mm : 6,00
Del. quantity cm³/ : 1,2...1,6

100 s : (-)

Spread cm³ : 0,3
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...1,00

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1080
Del. quantity : 89,0...91,0
1000 : (-)
Spread cm³ : 3,0
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 66...74

Testing:
1st rack travel in: 9,6
Speed rpm : 1130...1160
2nd rack travel in: 9,0
Speed rpm : 1115...1125

LOW IDLE 1

Control lever
position degrees: 25...33
Setting point w/out bumper spring

Speed rpm : 400
Rack travel in mm : 5,50

Testing:

Speed rpm : 100
Minimum rack travel : 19,00
Speed rpm : 400
Rack travel in mm : 5,90...6,10
Rack travel in mm : 2,00
Speed rpm : 520...580

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 400
Rack travel in m: 10,00
2nd speed rpm : 300
Rack travel in m: 11,20...11,80

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9,00
Speed rpm : 1115...1125

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 160,0...190,0
1000 s: (-)
Rack travel in mm : 19,00...21,00

HIGH IDLE

1st version
Speed rpm : 1145
Rack travel in mm : 4,60
Del. quantity cm³/ : 25,0...33,0
1000 s: (-)
Spread cm³ : 4,0
1000 s: (-)

LOW IDLE

Speed rpm : 400
Rack travel in mm : 6,00
Del. quantity cm³/ : 12,0...16,0
1000 s: (-)
Spread cm³ : 3,0
1000 s: (-)

Remarks:

Start-of-delivery mark at 14° angular displacement of the cam after start of delivery of cylinder 1 with control-rod travel = 10.50 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 6,6 h 2
Edition : 25.08.89
Replaces : -
Test oil : ISO-4113
Combination no. : 0 400 876 249
Injection pump
Pump designation : PES6A95D41QRS2500
EP type number : 0 410 886 246
Governor
Governor design. : RSV600...1100A2B774L
Governor no. : 0 420 232 210

Customer-spec. information
Customer : JOHN DEERE

Engine : 6404 T

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 025

Inlet press., bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 1,85...1,95
: (1,80...2,00)
Rack travel in mm : 9,00...12,00
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0,50 (0,75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 9,35...9,45

Del. quantity cm³/ : 8,0...8,2

100 s : (-)

Spread cm³ : 0,3

100 s : (-)

2nd speed rpm : 600

Rack travel in mm : 5,30

Del. quantity cm³/ : 1,2...1,6

100 s : (-)

Spread cm³ : 0,3

100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0,30...1,00

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del. quantity : 80,0...82,0

1000 : (-)

Spread cm³ : 3,0

1000 : (-)

RATED SPEED

1st version

Control lever

position degrees: 40...48

Testing:

1st rack travel in: 8,40

Speed rpm : 1150...1160

2nd rack travel in: 5,0

Speed rpm : 1185...1215

LOW IDLE 1

Control lever

position degrees: 16...24

Setting point w/out bumper spring

Speed rpm : 600
Rack travel in mm : 4,80

Testing:

Speed rpm : 100
Minimum rack travel: 19,00
Speed rpm : 600
Rack travel in mm : 5,20...5,40
Rack travel in mm : 2,00
Speed rpm : 670...730

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 8,40
Speed rpm : 1150...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 156,0...176,0
1000 s: (-)
Rack travel in mm : 19,00...21,00

HIGH IDLE

1st version
Speed rpm : 1200
Rack travel in mm : 5,00
Del. quantity cm³/ : 21,0...31,0
1000 s: (-)
Spread cm³ : 4,0
1000 s: (-)

LOW IDLE

Speed rpm : 600
Rack travel in mm : 5,30
Del. quantity cm³/ : 12,0...16,0
1000 s: (-)
Spread cm³ : 3,0
1000 s: (-)

Remarks:

Start-of-delivery mark at 14° angular displacement of the cam after start of delivery of cylinder 1 with control-rod travel = 10.50 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,7 i
Edition : 25.08.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 400 876 269

Injection pump
Pump designation : PES6A95D410RS2536
EP type number : 0 410 896 939
Governor
Governor design. : RSV400...1100A2B2018
DL
Governor no. : 0 420 234 378

Customer-spec. information
Customer : JOHN DEERE

Engine : 6466 T

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 1.85...1.95
 : (1.80...2.00)

Rack travel in mm : 10.50

Firing order : 1-5-23-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0.50 (.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.20...10.30

Del. quantity cm³/ : 9.5...9.7

100 s : (-)

Spread cm³ : 0.3

100 s : (-)

2nd speed rpm : 400
Rack travel in mm : 6.00...6.20
Del. quantity cm³/ : 1.2...1.6
100 s : (-)
Spread cm³ : 0.3
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...1.00

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Aneroid pressure h: 800
Del. quantity : 95.0...97.0
1000 : (-)
Spread cm³ : 3.0
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 44...52

Testing:
1st rack travel in: 9.20
Speed rpm : 1145...1155
2nd rack travel in: 5.10
Speed rpm : 1185...1215

LOW IDLE 1

Control lever
position degrees: 17...25
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.50

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 480...540

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 10.30...10.40
2nd speed rpm : 800
Rack travel in m: 10.90...11.00
3rd speed rpm : 650
Rack travel in m: 11.10...11.30

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 133.2
Rack travel mm : 10.05...10.15

Measurement

Speed 1/min : 500

1st pressure hPa : 219.9
Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800
Speed rpm : 650
Del.quantity cm3/ : 106.5...109.5
1000 s: (-)
Spread cm3 : 4.0
1000 s: (-)

Aneroid pressure h: -
Speed rpm : 550
Del.quantity cm3/ : 75.0...81.0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.20
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 162.0...182.0
1000 s: (-)
Rack travel in mm : 19.00...21.00

HIGH IDLE

1st version

Speed rpm : 1200
Rack travel in mm : 18.0...28.0
Del.quantity cm3/ : (-)
1000 s: 5.00...5.20
Spread cm3 : 4.0
1000 s: (-)

LOW IDLE

Speed rpm : 400
Rack travel in mm : 6.00...6.10
Del.quantity cm3/ : 12.0...16.0
1000 s: (-)
Spread cm3 : 3.0
1000 s: (-)

Remarks:

Start-of-delivery mark = 15.5° after
start of delivery cyl. 1.

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 6.2 o 1
Edition : 28.06.88
Replaces : 12.10.86
Test oil : ISO-4113

Combination no. : 0 400 876 333

Injection pump
Pump designation : PES6A95D32ORS2693Z
EP type number : 0 410 896 913
Governor
Governor design. : RSV300...1300AOC2195
R
Governor no. : 0 420 233 200

Customer-spec. information
Customer : DAF

Engine : DNS 620

1st version kW : 150.0
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
: (1.95...2.15)

Rack travel in mm : 7.50...10.50
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50
& maximum rack tra: 21.00
Difference ° CS : 2.50...3.50

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 12.20...12.30

Del. quantity cm³/ : 8.7...8.9

100 s: (8.5...9.1)

Spread cm³ : 0.35

100 s: (0.60)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Aneroid pressure h: 700

Del. quantity : 87.0...89.0

1000 : (85.0...91.0)

Spread cm³ : 3.5

1000 : (6.0)

RATED SPEED

1st version

Control lever

position degrees: 54-62

Testing:

1st rack travel in: 10.70

Speed rpm : 1340...1350

2nd rack travel in: 4.00

Speed rpm : 1410...1440

3rd rack travel in: 4.00
Speed rpm : 1430...1460
4th rack travel in: 1595
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 23...31
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.90

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 300
Rack travel in mm : 6.30...6.50
Rack travel in mm : 2.00
Speed rpm : 570...630

TORQUE CONTROL

Dimension a mm : 0.60
Torque control curve - 1st version
1st speed rpm : 1290
Rack travel in m: 11.70...11.90
2nd speed rpm : 500
Rack travel in m: 12.20...12.30
3rd speed rpm : 1020
Rack travel in m: 11.90...12.10

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 600
Pressure hPa : 700
Rack travel mm : 12.20...12.30

Measurement

Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 11.20...11.40
2nd pressure hPa : 290
Rack travel in m: 12.00...12.10
3rd pressure hPa : 250
Rack travel in m: 11.50...11.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 1290
Del. quantity cm³/ : 86.0...88.0
1000 s: (83.5...90.5)
Aneroid pressure h: -
Speed rpm : 600

Del. quantity cm³/ : 65.0...67.0
1000 s: (63.0...69.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.70
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 130.0...145.0
1000 s: (127.0...148.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.30...6.50
Del. quantity cm³/ : 7.0...11.0
1000 s: (4.5...13.5)
Spread cm³ : 3.5
1000 s: (5.5)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 9,0 i
 Edition : 18.8.89
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 400 878 006

Injection pump
 Pump designation : PES8A75D32ORS2357
 Governor
 Governor design. : RSV300...1200A0B1040
 DR

Customer-spec. information
 Customer : IHC

Engine : DV 550-B

1st version kW : 117.7
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 3.95...4.05
 : (3.90...4.10)
 Rack travel in mm : 10..00
 Firing order : 1-8-7-3-6-5-4-2

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1200

 Rack travel in mm : 10.00

 Del.quantity cm3/ : 5.7...6.0

 100 s : (-)

 Spread cm3 : -

 100 s : (-)

 2nd speed rpm : 1400
 Rack travel in mm : 8.70...8.90
 Del.quantity cm3/ : 3.4 *
 100 s : (-)
 3rd speed rpm : 300
 Rack travel in mm : 8.70...8.90
 Del.quantity cm3/ : 3.4 *
 100 s : (-)

1st speed rpm : 1200
 Del.quantity cm3/ : 5.7...6.0 **
 100 s : (-)
 Spread cm3 : -
 100 s : (-)
 2nd speed rpm : 1400
 Rack travel in mm : 8.70...8.90
 Del.quantity cm3/ : 0.1...1.4 **
 100 s : (-)
 3rd speed rpm : 300
 Rack travel in mm : 8.70...8.90
 Del.quantity cm3/ : 0.1...1.4 **
 100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1200
 Del.quantity : 56.0...58.0
 1000 : (-)

RATED SPEED

1st version
 Control lever
 position degrees: 46...54

Testing:

1st rack travel in: 7.80
Speed rpm : 1230...1250
2nd rack travel in: 4.80
Speed rpm : 1425...1455

LOW IDLE 1

Control lever
position degrees: 26...34
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.7

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 300
Rack travel in mm : 5.40...6.00
Rack travel in mm : 3.30
Speed rpm : 440...460
Speed rpm : 660
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 8.80
2nd speed rpm : 400
Rack travel in m: 9.80...10.00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 900
Del.quantity cm3/ : 56.5...59.5
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 7.80
Speed rpm : 1225...1235

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 111.0...134.0 *
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 900
Del.quantity cm3/ : 56.5...59.5
1000 s: (-)

LOW IDLE

Speed rpm : 300
Del.quantity cm3/ : 14.5...18.5 *

Remarks:

* = Cylinders 1,7,6 and 4

** = Cylinders 2,8,3 and 5

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 1 b
Edition : 28.8.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 401 274 004

Injection pump
Pump designation : PES4A95C420LS3013
EP type number : 0 411 294 997
Governor
Governor design. : RSV375...1100A2B538D
R
Governor no. : 0 420 235 142

Customer-spec. information
Customer : CASE

Engine : A - 62326

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Inlet press., bar : 1.00

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _ _ _

BEGINNING OF DELIVERY

Prestroke mm : 2.00...2.10
: (1.95...2.15)
Rack travel in mm : 10.50
Firing order : 1-3-4-2

Phasing : 0-90-180-270
Tolerance + - ° : 0.50 (0.75)

L26

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.20...11.30

Del. quantity cm³/ : 12.3...12.5
100 s : (-)

Spread cm³ : 0.3
100 s : (-)

2nd speed rpm : 375
Rack travel in mm : 3.50...3.70
Del. quantity cm³/ : 1.4...2.0
100 s : (-)
Spread cm³ : 0.3
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...1.00

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Del. quantity : 123.0...125.0
1000 : (-)
Spread cm³ : 3.0
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 34...42

Testing:
1st rack travel in: 10.20
Speed rpm : 1140...1155
2nd rack travel in: 3.60
Speed rpm : 1185...1215

LOW IDLE 1

Control lever
position degrees: 12...20
Setting point w/out bumper spring
Speed rpm : 375
Rack travel in mm : 5.4

Testing:

Speed rpm : 150
Minimum rack trave: 19.00
Speed rpm : 375
Rack travel in mm : 5.80...6.00
Rack travel in mm : 2.90
Speed rpm : 430...470
Speed rpm : 550
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 11.20...11.30
2nd speed rpm : 750
Rack travel in m: 11.50...11.70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm3/ : 125.0...128.0
1000 s: (-)
Spread cm3 : 4.0
1000 s: (-)
Speed rpm : 650
Del.quantity cm3/ : <63.7
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 10.20
Speed rpm : 1140...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 139.0...145.0
1000 s: (-)
Rack travel in mm : 14.60...14.80

HIGH IDLE

1st version

Speed rpm : 1200
Rack travel in mm : 3.50...3.70
Del.quantity cm3/ : 14.7...20.7
1000 s: (-)
Spread cm3 : 4.0
1000 s: (-)

LOW IDLE

L27

Speed rpm : 375
Rack travel in mm : 5.80...6.00
Del.quantity cm3/ : 15.8...21.8
1000 s: (-)
Spread cm3 : 3.0
1000 s: (-)

Remarks:

Test specifications approved by Scania
on 1987-12-15

Start-of-delivery mark is at start of
delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 5,5 a 3
Edition : 29.8.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 401 274 007

Injection pump
Pump designation : PES4A95D42OLS3023
EP type number : 0 411 294 997
Governor
Governor design. : RSV375...1100A2B538D
R
Governor no. : 0 420 235 142

Customer-spec. information
Customer : CASE

Engine : A 336 BDT

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Inlet press., bar : 1.00

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.00...2.10
: (1.95...2.15)
Rack travel in mm : 10.50
Firing order : 1-3-4-2

Phasing : 0-90-180-270
Tolerance + - ° : 0.50 (0.75)

L28

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.15...11.25

Del. quantity cm³/ : 12.3...12.5

100 s : (-)

Spread cm³ : 0.3

100 s : (-)

2nd speed rpm : 375

Rack travel in mm : 5.30...5.50

Del. quantity cm³/ : 1.5...2.1

100 s : (-)

Spread cm³ : 0.3

100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3

Speed rpm : 1000

Rack travel in mm : 0.20...1.20

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Del. quantity : 123.0...125.0

1000 : (-)

Spread cm³ : 3.0

1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 34...42

Testing:
1st rack travel in: 10.20
Speed rpm : 1140...1155
2nd rack travel in: 2.05
Speed rpm : 1205...1235

LOW IDLE 1

Control lever
position degrees: 12...20
Setting point w/out bumper spring
Speed rpm : 375
Rack travel in mm : 5.4

Testing:

Speed rpm : 150
Minimum rack trave: 19.00
Speed rpm : 375
Rack travel in mm : 5.80...6.00
Rack travel in mm : 2.90
Speed rpm : 440...460
Speed rpm : 550
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 11.20...11.30
2nd speed rpm : 680
Rack travel in m: 11.45...11.75
3rd speed rpm : 400
Rack travel in m: 11.45...11.75

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm3/ : 125.0...128.0
1000 s: (-)
Spread cm3 : 4.0
1000 s: (-)
Speed rpm : 650
Del.quantity cm3/ : <127.4
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 10.20
Speed rpm : 1140...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 139.0...145.0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1200
Rack travel in mm : 3.20...3.40
Del.quantity cm3/ : 14.7...20.7
1000 s: (-)
Spread cm3 : 4.0
1000 s: (-)

LOW IDLE

M01

Speed rpm : 375
Rack travel in mm : 5.30...5.50
Del.quantity cm3/ : 15.8...21.8
1000 s: (-)
Spread cm3 : 3.0
1000 s: (-)

Remarks:

Test specifications approved by Scania
on 1987-12-15

Start-of-delivery mark is at start of
delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 5,5 a 4
Edition : 29.8.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 401 274 008

Injection pump
Pump designation : PES4A95D420LS3023
EP type number : 0 411 294 997
Governor
Governor design. : RSV375...1100A2B651D
R
Governor no. : 0 420 235 165

Customer-spec. information
Customer : CASE

Engine : A 336 BDT (T/C)

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Inlet press., bar : 1.00

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.00...2.10
: (1.95...2.15)

Rack travel in mm : 10.50

Firing order : 1-3-4-2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

M02

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.25...11.35

Del. quantity cm³/ : 12.2...12.4
100 s : (-)

Spread cm³ : 0.3
100 s : (-)

2nd speed rpm : 375
Rack travel in mm : 5.80...6.00
Del. quantity cm³/ : 1.7...2.1
100 s : (-)

Spread cm³ : 0.3
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3

Speed rpm : 1000

Rack travel in mm : 0.30...1.00

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Del. quantity : 122.5...124.5
1000 : (-)

Spread cm³ : 3.0
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 34...42

Testing:
1st rack travel in: 10.30
Speed rpm : 1140...1155
2nd rack travel in: 2.10
Speed rpm : 1185...1215

LOW IDLE 1

Control lever
position degrees: 15...23
Setting point w/out bumper spring
Speed rpm : 375
Rack travel in mm : 5.4

Testing:

Speed rpm : 150
 Minimum rack trave: 19.00
 Speed rpm : 375
 Rack travel in mm : 5.80...6.00
 Rack travel in mm : 2.40
 Speed rpm : 440...460
 Speed rpm : 550
 Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version
 1st speed rpm : 1100
 Rack travel in m: 11.30...11.40
 2nd speed rpm : 800
 Rack travel in m: 11.50...11.60
 3rd speed rpm : 460
 Rack travel in m: 11.50...11.75

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
 Del.quantity cm3/ : 123.0...127.0
 1000 s: (-)
 Spread cm3 : 4.0
 1000 s: (-)
 Speed rpm : 650
 Del.quantity cm3/ : <126.0
 1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than
 full load rack tr: 10.30
 Speed rpm : 1140...1155

STARTING FUEL DELIVERY

Speed rpm : 100
 Del.quantity cm3/ : 132.0...138.0
 1000 s: (-)
 Rack travel in mm : 14.70...14.80

HIGH IDLE

1st version

Speed rpm : 1200
 Rack travel in mm : 3.40...3.60
 Del.quantity cm3/ : 13.0...19.0
 1000 s: (-)
 Spread cm3 : 4.0
 1000 s: (-)

M03

LOW IDLE

Speed rpm : 375
 Rack travel in mm : 5.80...6.00
 Del.quantity cm3/ : 17.0...21.0
 1000 s: (-)
 Spread cm3 : 3.0
 1000 s: (-)

Remarks:

Test specifications approved by Scania
 on 1987-12-15

Start-of-delivery mark is at start of
 delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 o
Edition : 07.08.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 401 276 007

Injection pump
Pump designation : PES6A95C420LS3007
Governor
Governor design. : RSV375...1100A2B569D
R

Customer-spec. information
Customer : CASE

Engine : A-504 BDT

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : WS 187P (CASE)

Inlet press., bar : 1.25

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,00...2,10
 : (1,95...2,15)
Rack travel in mm : 9,00...12,00
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9,00

Del. quantity cm³/ : 8,4...9,0

100 s : (-)

Spread cm³ : 0,4

100 s : (-)

2nd speed rpm : 1000
Rack travel in mm : 15,00
Del. quantity cm³/ : 16,5...17,8
100 s : (-)
3rd speed rpm : 200
Rack travel in mm : 6,00
Del. quantity cm³/ : 1,4...2,6
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Del. quantity : 136,0...138,0
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 39...47

Testing:
1st rack travel in: 11,20
Speed rpm : 1125...1155
2nd rack travel in: 2,90
Speed rpm : 1185...1215
4th rack travel in: 1250
Speed rpm : 0,30...1,00

LOW IDLE 1

Control lever
position degrees: 15...23
Setting point w/out bumper spring

Speed rpm : 375
Rack travel in mm : 5,90

Testing:

Speed rpm : 150
Minimum rack trave: 19,00
Speed rpm : 375
Rack travel in mm : 5,60...6,20
Rack travel in mm : 2,70
Speed rpm : 440...460
Speed rpm : 540
Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 9,00
2nd speed rpm : 400
Rack travel in m: 9,60...9,90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm3/ : 145,5...149,5
1000 s: (-)
Speed rpm : 650
Del.quantity cm3/ : <148,5
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 8,00
Speed rpm : 1140...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 134,0...144,0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1200
Del.quantity cm3/ : 20,5...28,5
1000 s: (-)

LOW IDLE

Speed rpm : 375
Del.quantity cm3/ : 17,0...23,0
1000 s: (-)

Remarks:

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 q 1
Edition : 24.08.89
Replaces : -
Test oil : IS0-4113
Combination no. : 0 401 276 011
Injection pump
Pump designation : PES6A95D42OLS3007
Governor
Governor design. : RSV375...1100A2B569D
R

Customer-spec. information
Customer : CASE

Engine : A-504 BDT

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Inlet press., bar : 1.5
Test nozzle holder
assembly : 0 681 443 022
Opening
pressure, bar : 172...175
Test lines : 9 681 230 706
Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600
(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _ _ _ _

BEGINNING OF DELIVERY

Prestroke mm : 2,00...2,10
 : (1,95...2,15)
Rack travel in mm : 9,00...12,00
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

M06

1st speed rpm : 1000

Rack travel in mm : 9,00

Del. quantity cm³/ : 8,4...9,0

100 s : (-)

Spread cm³ : 0,4

100 s : (-)

2nd speed rpm : 1000
Rack travel in mm : 15,00
Del. quantity cm³/ : 16,5...17,8
100 s : (-)
3rd speed rpm : 200
Rack travel in mm : 6,00
Del. quantity cm³/ : 1,4...2,6
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Del. quantity : 136,0...138,0
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 39...47

Testing:
1st rack travel in: 10,80
Speed rpm : 1130...1150
2nd rack travel in: 2,90
Speed rpm : 1190...1210
4th rack travel in: 1250
Speed rpm : 0,30...1,00

LOW IDLE 1

Control lever
position degrees: 15...23
Setting point w/out bumper spring
Speed rpm : 375
Rack travel in mm : 5,90

Testing:

Speed rpm : 150
Minimum rack trave: 19,00
Speed rpm : 375
Rack travel in mm : 5,60...6,20
Speed rpm : 540
Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100
Rack travel in m: 9,00
2nd speed rpm : 400
Rack travel in m: 9,60...9,90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm3/ : 145,5...149,5
1000 s: (-)
Speed rpm : 650
Del.quantity cm3/ : <149,0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 1140...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 134,0...144,0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1200
Del.quantity cm3/ : 21,5...28,5
1000 s: (-)

LOW IDLE

Speed rpm : 375
Del.quantity cm3/ : 17,0...23,0
1000 s: (-)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 6,6 b 1
Edition : 01.08.89
Replaces : -
Test oil : ISO-4113
Combination no. : 0 401 276 018
Injection pump
Pump designation : PES6A100D410RS3020
Governor
Governor design. : RSV400...1100A2B676D

Customer-spec. information
Customer : JOHN DEERE

Engine : 6404

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Inlet press., bar : 1.5
Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,00...2,10
 : (1,95...2,15)
Rack travel in mm : 9,00...12,00
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

MOB

1st speed rpm : 1000

Rack travel in mm : 9,00

Del. quantity cm³/ : 7,9...8,7

100 s : (-)

2nd speed rpm : 200
Rack travel in mm : 9,00
Del. quantity cm³/ : 4,2...5,4
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Aneroid pressure h: 700
Del. quantity : 105,0...107,0
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 39...47

Testing:
1st rack travel in: 10.30
Speed rpm : 1090...1110
2nd rack travel in: 4.30
Speed rpm : 1185...1215
4th rack travel in: 1260
Speed rpm : 0.30...1.00

LOW IDLE 1

Control lever
position degrees: 17...25
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 6,30

Testing:
Speed rpm : 200
Minimum rack travel: 19,00
Speed rpm : 400
Rack travel in mm : 6,00...6,60
Rack travel in mm : 1,80
Speed rpm : 480...520
Speed rpm : 560
Maximum rack travel: 1,00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100
Rack travel in m: 9,00
2nd speed rpm : 500
Rack travel in m: 9,80...10,10

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 550
Pressure hPa : 550
Rack travel mm : 0.10...0.20

Measurement

Speed 1/min : 550

1st pressure hPa : 80
Rack travel in m: 2.60...2.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 750
Del. quantity cm³/ : 117,0...120,0
1000 s: (-)
Aneroid pressure h: -
Speed rpm : 550
Del. quantity cm³/ : 69,0...75,0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 160,0...180,0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1200
Del. quantity cm³/ : 20,0...30,0
1000 s: (-)

LOW IDLE

Speed rpm : 400
Del. quantity cm³/ : 11,5...15,5
1000 s: (-)

Remarks:

Start-of-delivery mark at 14° angular displacement of the cam after start of delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 a11
Edition : 29.8.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 401 276 027

Injection pump
Pump designation : PES6A95D42OLS3024
EP type number : 0 411 296 996
Governor
Governor design. : RSV375...1100A2B516D
R
Governor no. : 0 420 235 144

Customer-spec. information
Customer : CASE

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 9 681 273 009

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 9 681 271 020

Outside diameter
x Wall thickness
x Length mm : 6.35x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values ___

BEGINNING OF DELIVERY

Prestroke mm : 2.00...2.10
: (1.95...2.15)
Rack travel in mm : 10.50
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.75...10.85

Del. quantity cm³/ : 11.2...11.4
100 s : (-)

Spread cm³ : 0.3
100 s : (-)

2nd speed rpm : 375
Rack travel in mm : 5.60...5.80
Del. quantity cm³/ : 1.6...2.2
100 s : (-)
Spread cm³ : 0.3
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 1000
Rack travel in mm : 0.20...1.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Del. quantity : 112.0...114.0
1000 : (-)
Spread cm³ : 3.0
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 35...43

Testing:
1st rack travel in: 9.80
Speed rpm : 1140...1150
2nd rack travel in: 2.20
Speed rpm : 1205...1235
4th rack travel in: 1280
Speed rpm : 0.30...1.00

LOW IDLE 1

Control lever
position degrees: 14...22
Setting point w/out bumper spring
Speed rpm : 375

Rack travel in mm : 5.20

Testing:

Speed rpm : 150
Minimum rack trave: 19.00
Speed rpm : 375
Rack travel in mm : 5.60...5.80
Rack travel in mm : 2.45
Speed rpm : 440...460
Speed rpm : 550
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 10.80...10.90
2nd speed rpm : 800
Rack travel in m: 10.95...11.25
3rd speed rpm : 600
Rack travel in m: 10.95...11.25

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800
Del.quantity cm3/ : 114.0...117.0
1000 s: (-)
Spread cm3 : 4.0
1000 s: (-)
Speed rpm : 700
Del.quantity cm3/ : <117.0
1000 s: (-)
Spread cm3 : 4.0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.80
Speed rpm : 1140...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 132.0...138.0
1000 s: (-)
Rack travel in mm : 14.60...14.80

HIGH IDLE

1st version

Speed rpm : 1200
Rack travel in mm : 3.50...3.70
Del.quantity cm3/ : 12.0...18.0
1000 s: (-)

M11

Spread cm3 : 4.0
1000 s: (-)

LOW IDLE

Speed rpm : 375
Rack travel in mm : 5.60...5.80
Del.quantity cm3/ : 16.0...22.0
1000 s: (-)
Spread cm3 : 3.0
1000 s: (-)

Remarks:

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 a12
 Edition : 29.8.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 276 029
 Injection pump
 Pump designation : PES6A95D420LS3024
 EP type number : 0 411 296 996
 Governor
 Governor design. : RSV375...1100A2B599D
 R
 Governor no. : 0 420 235 152

Customer-spec. information
 Customer : CASE

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 9 681 273 009
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test lines : 9 681 271 020
 Outside diameter
 x Wall thickness
 x Length mm : 6.35x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.00...2.10
 : (1.95...2.15)
 Rack travel in mm : 10.50
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

 Rack travel in mm : 10.75...10.85

 Del. quantity cm³/ : 11.2...11.4

 100 s : (-)

 Spread cm³ : 0.3

 100 s : (-)

 2nd speed rpm : 375
 Rack travel in mm : 5.60...5.80
 Del. quantity cm³/ : 1.6...2.2
 100 s : (-)
 Spread cm³ : 0.3
 100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 1000
 Rack travel in mm : 0.20...1.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Del. quantity : 112.0...114.0
 1000 : (-)
 Spread cm³ : 3.0
 1000 : (-)

RATED SPEED

1st version
 Control lever
 position degrees: 35...43

Testing:
 1st rack travel in: 9.80
 Speed rpm : 1140...1155
 2nd rack travel in: 2.20
 Speed rpm : 1205...1235
 4th rack travel in: 1300
 Speed rpm : 0.30...1.00

LOW IDLE 1

Control lever
 position degrees: 14...22
 Setting point w/out bumper spring
 Speed rpm : 375

Rack travel in mm : 5.20

Testing:

Speed rpm : 150
Minimum rack trave: 19.00
Speed rpm : 375
Rack travel in mm : 5.60...5.80
Rack travel in mm : 3.00
Speed rpm : 440...460
Speed rpm : 600
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 10.80...10.90
2nd speed rpm : 950
Rack travel in m: 11.00...11.20
3rd speed rpm : 600
Rack travel in m: 11.00...11.20

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800
Del.quantity cm³/ : 114.0...117.0
1000 s: (-)
Spread cm³ : 4.0
1000 s: (-)
Speed rpm : 700
Del.quantity cm³/ : <117.0
1000 s: (-)
Spread cm³ : 4.0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 9.80
Speed rpm : 1140...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 132.0...138.0
1000 s: (-)
Rack travel in mm : 14.60...14.80

HIGH IDLE

1st version

Speed rpm : 1200
Rack travel in mm : 3.50...3.70
Del.quantity cm³/ : 12.0...18.0
1000 s: (-)

Spread cm³ : 4.0
1000 s: (-)

LOW IDLE

Speed rpm : 375
Rack travel in mm : 5.60...5.80
Del.quantity cm³/ : 16.0...22.0
1000 s: (-)
Spread cm³ : 3.0
1000 s: (-)

Remarks:

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 a13
 Edition : 29.8.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 276 034
 Injection pump
 Pump designation : PES6A95D420LS3024
 EP type number : 0 411 296 996
 Governor
 Governor design. : RSV375...1100A2B697D
 R

Customer-spec. information
 Customer : CASE

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 9 681 273 009
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test lines : 9 681 271 020

Outside diameter
 x Wall thickness
 x Length mm : 6.35X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values

BEGINNING OF DELIVERY

Prestroke mm : 2.00...2.10
 : (1.95...2.15)
 Rack travel in mm : 10.50
 Firing order : 1-5-3-6-2-4
 Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

 Rack travel in mm : 11.25...11.35

 Del. quantity cm³/ : 12.4...12.6

 100 s : (-)

 Spread cm³ : 0.3

 100 s : (-)

 2nd speed rpm : 375
 Rack travel in mm : 5.60...5.80
 Del. quantity cm³/ : 1.6...2.2
 100 s : (-)
 Spread cm³ : 0.3
 100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 1000
 Rack travel in mm : 0.20...1.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Del. quantity : 112.0...114.0
 1000 : (-)
 Spread cm³ : 3.0
 1000 : (-)

RATED SPEED

1st version
 Control lever
 position degrees: 38...46

Testing:
 1st rack travel in: 10.30
 Speed rpm : 1140...1155
 2nd rack travel in: 3.65
 Speed rpm : 1185...1215
 4th rack travel in: 1280
 Speed rpm : 0.20...1.20

LOW IDLE 1

Control lever
 position degrees: 14...22
 Setting point w/out bumper spring
 Speed rpm : 375
 Rack travel in mm : 5.20

Testing:

Speed rpm : 150
Minimum rack trave: 19.00
Speed rpm : 375
Rack travel in mm : 5.60...5.80
Rack travel in mm : 2.30
Speed rpm : 440...460
Speed rpm : 600
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 11.30...11.40
2nd speed rpm : 750
Rack travel in m: 11.40...11.60
3rd speed rpm : 500
Rack travel in m: 11.40...11.60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm3/ : 124.0...127.0
1000 s: (-)
Spread cm3 : 4.0
1000 s: (-)
Speed rpm : 650
Del.quantity cm3/ : <126.0
1000 s: (-)
Spread cm3 : 4.0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 10.30
Speed rpm : 1140...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 132.0...138.0
1000 s: (-)
Rack travel in mm : 14.00...14.70

HIGH IDLE

1st version

Speed rpm : 1200
Rack travel in mm : 3.90...4.10
Del.quantity cm3/ : 22.0...28.0
1000 s: (-)
Spread cm3 : 4.0
1000 s: (-)

M15

LOW IDLE

Speed rpm : 375
Rack travel in mm : 5.60...5.80
Del.quantity cm3/ : 16.2...22.2
1000 s: (-)
Spread cm3 : 3.0
1000 s: (-)

Remarks:

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 6,6 g 1
Edition : 29.8.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 401 276 037

Injection pump
Pump designation : PES6A100D41ORS3025
EP type number : 0 411 206 009
Governor
Governor design. : RSV400...1100A2B765D
L
Governor no. : 0 420 234 344

Customer-spec. information
Customer : JOHN DEERE

Engine : 6404 A

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Prestroke mm : 2.00...2.10
: (1.95...2.15)

Rack travel in mm : 10.50

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

M16

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.00...10.10

Del. quantity cm³/ : 10.4...10.6

100 s : (-)

Spread cm³ : 0.3

100 s : (-)

2nd speed rpm : 400

Rack travel in mm : 6.20...6.40

Del. quantity cm³/ : 1.2...1.6

100 s : (-)

Spread cm³ : 0.3

100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3

Speed rpm : 1000

Rack travel in mm : 0.20...1.20

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Aneroid pressure h : 800
Del. quantity : 104.0...106.0

1000 : (-)

Spread cm³ : 3.0

1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 40...48

Testing:
1st rack travel in: 9.00
Speed rpm : 1145...1155

2nd rack travel in: 2.40
Speed rpm : 1255...1285

4th rack travel in: 1350
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 17...25

Setting point w/out bumper spring

Speed rpm : 400

Rack travel in mm : 5.80

Testing:

Speed rpm : 100

Minimum rack trave: 19.00

Speed rpm : 400

Rack travel in mm : 6.20...6.40

Rack travel in mm : 3.00

Speed rpm : 470...490

Speed rpm : 600

Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 10.00...10.10

2nd speed rpm : 750

Rack travel in m: 10.50...10.60

3rd speed rpm : 500

Rack travel in m: 10.50...10.60

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 550

Pressure hPa : 86.6

Rack travel mm : *

Measurement

Speed 1/min : 550

1st pressure hPa : 486.5

Rack travel in m: **

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800

Speed rpm : 750

Del. quantity cm³/ : 113.0...116.0

1000 s: (-)

Spread cm³ : 4.0

1000 s: (-)

Aneroid pressure h: -

Speed rpm : 550

Del. quantity cm³/ : 61.7...67.7

1000 s: (-)

Spread cm³ : 4.0

BREAKAWAY

1st version

M17

1mm rack travel less than

full load rack tr: 9.00

Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm³/ : 155.0...175.0

1000 s: (-)

Rack travel in mm : 21.00

HIGH IDLE

1st version

Speed rpm : 1200

Rack travel in mm : 4.70...4.90

Del. quantity cm³/ : 26.5...36.5

1000 s: (-)

Spread cm³ : 4.0

1000 s: (-)

LOW IDLE

Speed rpm : 400

Rack travel in mm : 6.20...6.40

Del. quantity cm³/ : 12.0...16.0

1000 s: (-)

Spread cm³ : 3.0

1000 s: (-)

Remarks:

* Start of LDA (manifold-pressure compensator) movement

** Ende der LDA-Bewegung

Start-of-delivery mark at 14° angular displacement of the cam after start of delivery of cylinder 1 with control-rod travel = 10.50 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 6,6 g 2
Edition : 25.8.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 401 276 039

Injection pump
Pump designation : PES6A100D410RS3025
EP type number : 0 411 206 009
Governor
Governor design. : RSV400...1100A2B766D
L
Governor no. : 0 420 234 345

Customer-spec. information
Customer : JOHN DEERE

Engine : 6404 A

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 1.95...2.05
 : (1.90...2.10)

Rack travel in mm : 10.50

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

M18

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.15...10.25

Del. quantity cm³/ : 10.9...11.1

100 s : (-)

Spread cm³ : 0.3

100 s : (-)

2nd speed rpm : 400

Rack travel in mm : 6.20...6.40

Del. quantity cm³/ : 1.3...1.7

100 s : (-)

Spread cm³ : 0.3

100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h : 800

Del. quantity : 109.2...111.2

1000 : (-)

Spread cm³ : 3.0

1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 40...48

Testing:

1st rack travel in: 9.20
Speed rpm : 1145...1155

2nd rack travel in: 4.80
Speed rpm : 1185...1215

LOW IDLE 1

Control lever
position degrees: 17...25

Setting point w/out bumper spring
Speed rpm : 400

Rack travel in mm : 5.80

Testing:

Speed rpm : 100
Minimum rack travel : 19.00
Speed rpm : 400
Rack travel in mm : 6.20...6.40
Rack travel in mm : 2.00
Speed rpm : 480...540

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 750
Rack travel in m: 11.20...11.30
2nd speed rpm : 500
Rack travel in m: 11.95...12.00

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 113.2
Rack travel mm : 9.55...9.65

Measurement

Speed 1/min : 500

1st pressure hPa : 319.9
Rack travel in m: 10.80...11.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800
Speed rpm : 500
Del. quantity cm³/ : 122.3...125.3
1000 s: (-)
Spread cm³ : 4.0
1000 s: (-)
Aneroid pressure h: -
Speed rpm : 550
Del. quantity cm³/ : 70..3...76.3
1000 s: (-)
Spread cm³ : 4.0

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.20
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 155.0...185.0
1000 s: (-)
Rack travel in mm : 19.00...21.00

HIGH IDLE

1st version

Speed rpm : 1200
Rack travel in mm : 4.70...4.90
Del. quantity cm³/ : 25.3...35.3
1000 s: (-)
Spread cm³ : 4.0
1000 s: (-)

Remarks:

Start-of-delivery mark at 14° angular displacement of the cam after start of delivery of cylinder 1 with control-rod travel = 10.50 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 a10
 Edition : 17.08.89
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 401 276 041

Injection pump
 Pump designation : PES6A100D420LS3024
 EP type number : 0 411 206 008
 Governor
 Governor design. : RSV375...1050A2B785D
 R
 Governor no. : 0 420 235 189

Customer-spec. information
 Customer : CASE

Engine : A 504 BDT

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Inlet press., bar : 1.5

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
 x Wall thickness
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,00...2,10
 : (1,95...2,15)
 Rack travel in mm : 9,00...12,00
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0,50 (0,75)

M20

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 12,15...12,25

Del. quantity cm³/ : 14,3...14,5
 100 s : (-)

Spread cm³ : 0,3
 100 s : (-)

2nd speed rpm : 375
 Rack travel in mm : 6,10...6,30
 Del. quantity cm³/ : 1,6...2,2
 100 s : (1,4...2,4)
 Spread cm³ : 0,3
 100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0,30...0,70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1050
 Del. quantity : 143,5...145,5
 1000 : (141,0...148,0)
 Spread cm³ : 3,0
 1000 : (-)

RATED SPEED

1st version
 Control lever
 position degrees: 38...46

Testing:
 1st rack travel in: 11,20
 Speed rpm : 1090...1100
 2nd rack travel in: 3,10
 Speed rpm : 1165...1195
 4th rack travel in: 1250
 Speed rpm : 0,20...1,20

LOW IDLE 1

Control lever
 position degrees: 18...26
 Setting point w/out bumper spring

Speed rpm : 375
Rack travel in mm : 5,70

Testing:

Speed rpm : 150
Minimum rack travel: 19,00
Speed rpm : 375
Rack travel in mm : 6,10...6,30
Rack travel in mm : 3,30
Speed rpm : 440...460
Speed rpm : 550
Maximum rack travel: 1,00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 12,20
2nd speed rpm : 700
Rack travel in m: 12,25...12,45
3rd speed rpm : 400
Rack travel in m: 12,25...12,45

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700
Del. quantity cm³/ : 144,5...147,5
1000 s: (141,5...150,5)
Spread cm³ : 4,0
1000 s: (-)
Speed rpm : 600
Del. quantity cm³/ : <147,0
1000 s: (<145,0)
Spread cm³ : 4,0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11,20
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 135,0...141,0
1000 s: (-)
Rack travel in mm : 14,30...14,60

HIGH IDLE

1st version

Speed rpm : 1165
Rack travel in mm : 4,40...4,60

Del. quantity cm³/ : 25,0...31,0
1000 s: (22,5...33,5)
Spread cm³ : 4,0
1000 s: (-)

LOW IDLE

Speed rpm : 375
Rack travel in mm : 6,10...6,30
Del. quantity cm³/ : 15,6...21,6
1000 s: (13,6...23,6)
Spread cm³ : 3,0
1000 s: (-)

Remarks:

Start-of-delivery mark is at start of
delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 6,6 g
 Edition : 27.07.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 276 042
 Injection pump
 Pump designation : PES6A100D41ORS3025
 Governor
 Governor design. : RSV400...1050A2B786D
 L

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6404

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 413 385 007
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test lines : 1 680 750 008
 Outside diameter
 x Wall thickness
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values

BEGINNING OF DELIVERY

Prestroke mm : 2,00...2,10
 : (1,95...2,15)
 Rack travel in mm : 9,00...12,00
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0,50 (0,75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

 Rack travel in mm : 11,10

 Del. quantity cm³/ : 11,45...11,65

 100 s : (-)

 Spread cm³ : 0,3

 100 s : (-)

 2nd speed rpm : 400
 Rack travel in mm : 6,60
 Del. quantity cm³/ : 1,30...1,70
 100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0,30...0,70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1050
 Aneroid pressure h: 1100
 Del. quantity : 113,0...117,5
 1000 : (111,0...119,5)

RATED SPEED

1st version
 Control lever
 position degrees: 39...47

Testing:
 1st rack travel in: 10,10
 Speed rpm : 1095...1110
 2nd rack travel in: 3,00
 Speed rpm : 1195...1225
 4th rack travel in: 1300
 Speed rpm : 0,20...1,20

LOW IDLE 1

Control lever
 position degrees: 18...26
 Setting point w/out bumper spring
 Speed rpm : 400

Rack travel in mm : 6,60

Testing:

Speed rpm : 100
Minimum rack trave: 19,00
Speed rpm : 400
Rack travel in mm : 6,50...6,70
Speed rpm : 600
Maximum rack trave: 0,10

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050
Rack travel in m: 11,10
2nd speed rpm : 900
Rack travel in m: 11,20...11,40
3rd speed rpm : 750
Rack travel in m: 12,00...12,10

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 550
Pressure hPa : 890
Rack travel mm : 12.00...12.10

Measurement

Speed 1/min : 550

1st pressure hPa : 280
Rack travel in m: *

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1100
Speed rpm : 750
Del.quantity cm3/ : 121,0...126,0
1000 s: (119,0...128,0)
Aneroid pressure h: -
Speed rpm : 550
Del.quantity cm3/ : 49,0...55,0
1000 s: (47,0...57,0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10,10
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 155,0...185,0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1150
Del.quantity cm3/ : 22,0...32,0
1000 s: (-)

LOW IDLE

Speed rpm : 400
Del.quantity cm3/ : 13,0...17,0
1000 s: (-)

Remarks:

Start-of-delivery mark at 14° angular displacement of the cam after start of delivery of cylinder 1

* Start of LDA (manifold-pressure compensator) movement

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,7 j
Edition : 24.08.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 401 276 044

Injection pump
Pump designation : PES6A100D41ORS3027
EP type number : 0 411 206 013
Governor
Governor design. : RSV400...1100A2B789D
L
Governor no. : 0 420 234 368

Customer-spec. information
Customer : JOHN DEERE

Engine : 6466 A

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,00...2,10
: (1,95...2,15)
Rack travel in mm : 9,00...12,00
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10,85...10,95

Del. quantity cm³/ : 10,7...10,9

100 s: (-)

Spread cm³ : 0,3

100 s: (-)

2nd speed rpm : 400
Rack travel in mm : 6,30
Del. quantity cm³/ : 1,5...1,9
100 s: (-)
Spread cm³ : 0,3
100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Del. quantity : 106,5...108,5
1000 : (-)
Spread cm³ : 3,0
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 40...48

Testing:
1st rack travel in: 9,90
Speed rpm : 1145...1155
2nd rack travel in: 6,20
Speed rpm : 1185...1215

LOW IDLE 1

Control lever
position degrees: 17...25
Setting point w/out bumper spring
Speed rpm : 400

Rack travel in mm : 5,80

Testing:

Speed rpm : 100
Minimum rack travel: 19,00
Speed rpm : 400
Rack travel in mm : 6,20...6,40
Rack travel in mm : 2,00
Speed rpm : 450...510

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100
Rack travel in m: 10,90
2nd speed rpm : 525
Rack travel in m: 12,35

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 117
Rack travel mm : 10,55...10,65

Measurement

Speed 1/min : 500

1st pressure hPa : 315
Rack travel in m: 11,60...12,00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 525
Del. quantity cm³/ : 116,1...119,1
1000 s: (-)
Spread cm³ : 4,0
1000 s: (-)
Speed rpm : 550
Del. quantity cm³/ : 82,6...85,6
1000 s: (-)
Spread cm³ : 4,0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9,90
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 148,0...178,0
1000 s: (-)
Rack travel in mm : 19,00...21,00

HIGH IDLE

1st version

Speed rpm : 1200
Rack travel in mm : 6,20
Del. quantity cm³/ : 20,6...35,6
1000 s: (-)
Spread cm³ : 4,0
1000 s: (-)

LOW IDLE

Speed rpm : 400
Rack travel in mm : 6,30
Del. quantity cm³/ : 10,8...14,8
1000 s: (-)
Spread cm³ : 3,0
1000 s: (-)

Remarks:

Start-of-delivery mark at control-rod
travel 10.5 mm and 15^o after start of
delivery.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 a15
 Edition : 24.08.89
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 401 276 045

Injection pump
 Pump designation : PES6A100D420LS3024
 EP type number : 0 411 206 008
 Governor
 Governor design. : RSV375...1100A2B798D
 R
 Governor no. : 0 420 235 192

Customer-spec. information
 Customer : CASE

Engine : A-504 BDT

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 0 681 273 009

Inlet press., bar : 1.0

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
 x Wall thickness
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values -----

BEGINNING OF DELIVERY

Prestroke mm : 2,00...2,10
 : (1,95...2,15)
 Rack travel in mm : 9,00...12,00
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10,85...10,95

Del. quantity cm³/ : 12,5...12,7
 100 s : (-)

Spread cm³ : 0,3
 100 s : (-)

2nd speed rpm : 375
 Rack travel in mm : 6,00
 Del. quantity cm³/ : 1,7...2,3
 100 s : (-)
 Spread cm³ : 0,3
 100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0,30...0,70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Del. quantity : 125,0...127,0
 1000 : (-)
 Spread cm³ : 3,0
 1000 : (-)

RATED SPEED

1st version
 Control lever
 position degrees: 39...47

Testing:
 1st rack travel in: 9,90
 Speed rpm : 1140...1150
 2nd rack travel in: 3,100
 Speed rpm : 1210...1240
 4th rack travel in: 1300
 Speed rpm : 0,20...1,20

LOW IDLE 1

Control lever
 position degrees: 18...26

Setting point w/out bumper spring

Speed rpm : 375

Rack travel in mm : 5,50

Testing:

Speed rpm : 150

Minimum rack trave: 19,00

Speed rpm : 375

Rack travel in mm : 5,90...6,10

Rack travel in mm : 3,30

Speed rpm : 440...460

Speed rpm : 600

Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 10,90

2nd speed rpm : 750

Rack travel in m: 11,50...11,70

3rd speed rpm : 600

Rack travel in m: 11,70...11,90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750

Del.quantity cm3/ : 133,0...136,0

1000 s: (-)

Spread cm3 : 4,0

1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,0

Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 130,0...136,0

1000 s: (-)

Rack travel in mm : 14,30...14,60

HIGH IDLE

1st version

Speed rpm : 1215

Rack travel in mm : 4,50

Del.quantity cm3/ : 25,0...31,0

1000 s: (-)

Spread cm3 : 4,0

1000 s: (-)

LOW IDLE

Speed rpm : 375

Rack travel in mm : 6,00

Del.quantity cm3/ : 16,8...22,8

1000 s: (-)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 a14
 Edition : 24.8.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 276 046
 Injection pump
 Pump designation : PES6A95D42OLS3024
 EP type number : 0 411 296 996
 Governor
 Governor design. : RSV375...1100A2B799D
 R
 Governor no. : 0 420 235 194

Customer-spec. information
 Customer : CASE

Engine : A 504 BDT

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 9 681 273 009
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test lines : 9 681 271 020
 Outside diameter
 x Wall thickness
 x Length mm : 6.35X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values -----

BEGINNING OF DELIVERY

Prestroke mm : 1.95...2.05
 : (1.90...2.10)
 Rack travel in mm : 10.50
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

 Rack travel in mm : 9.40...9.50

 Del. quantity cm³/ : 9.3...9.4

 100 s : (-)

 Spread cm³ : 3.0

 100 s : (-)

 2nd speed rpm : 375
 Rack travel in mm : 5.70...5.90
 Del. quantity cm³/ : 1.7...2.1
 100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Del. quantity : 93.5...94.5
 1000 : (-)
 Spread cm³ : 3.0
 1000 : (-)

RATED SPEED

1st version
 Control lever
 position degrees: 39...47

Testing:

1st rack travel in: 8.40
 Speed rpm : 1140...1150
 2nd rack travel in: 4.00
 Speed rpm : 1180...1210
 4th rack travel in: 1250
 Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
 position degrees: 17...25
 Setting point w/out bumper spring
 Speed rpm : 375
 Rack travel in mm : 5.30

Testing:

Speed rpm : 100
 Minimum rack trave: 19.00
 Speed rpm : 375
 Rack travel in mm : 5.70...5.90
 Rack travel in mm : 2.00
 Speed rpm : 465...525
 Speed rpm : 550
 Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100
 Rack travel in m: 9.35...9.45
 2nd speed rpm : 800
 Rack travel in m: 9.55...9.85
 3rd speed rpm : 700
 Rack travel in m: 9.65...9.75

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800
 Del.quantity cm3/ : 92.5...98.5
 1000 s: (-)
 Spread cm3 : 4.0
 1000 s: (-)
 Speed rpm : 700
 Del.quantity cm3/ : <96.0
 1000 s: (-)
 Spread cm3 : 4.0
 1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.40
 Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
 Del.quantity cm3/ : 130.0...140.0
 1000 s: (-)
 Rack travel in mm : 14.30...14.50

HIGH IDLE

1st version

Speed rpm : 1200
 Rack travel in mm : 3.70...3.90
 Del.quantity cm3/ : 11.0...21.0
 1000 s: (-)

Spread cm3 : 4.0
 1000 s: (-)

LOW IDLE

Speed rpm : 375
 Rack travel in mm : 5.70...5.90
 Del.quantity cm3/ : 17.0...21.0
 1000 s: (-)
 Spread cm3 : 3.0
 1000 s: (-)

Remarks:

Adjustment without torque-control
 spring retainer with 1 mm less
 control-rod travel. Increase in
 full-load delivery with torque-control
 spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA 8,0 q
 Edition : 18.07.89
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 401 846 137

Injection pump
 Pump designation : PE6P100/72ORS140
 Governor
 Governor design. : RQ200/1200PA102R

Customer-spec. information
 Customer : SCANIA

Engine : DS 8

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 40...45

Overflow valve : 1 413 417 025

Inlet press., bar : 1.5

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6,00x1,50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,5...2,6
 : (2,45...2,65)
 Rack travel in mm : 9,00...12,00
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0,50 (0,75)

N02

BASIC SETTING

1st speed rpm : 1200

 Rack travel in mm : 13,50

 Del. quantity cm³/ : 12,2...12,6

 100 s : (-)

 Spread cm³ : 0,5

 100 s : (-)

 2nd speed rpm : 225
 Rack travel in mm : 6,00
 Del. quantity cm³/ : 1,0...1,2
 100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1270
 Rack travel in mm : 15.60...16.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1200
 Del. quantity : 123,0...127,0
 1000 : (-)

RATED SPEED

1st version
 Setting point:
 Speed rpm : 1270
 Rack travel in mm : 15.8

Testing:
 1st rack travel in: 12,50
 Speed rpm : 1245...1260
 2nd rack travel in: 3,60
 Speed rpm : 1405...1435
 4th rack travel in: 1500
 Speed rpm : 0,00...1,00

LOW IDLE 1

Setting point w/out bumper spring
 Speed rpm : 250
 Rack travel in mm : 6.15

Testing:
 Speed rpm : 180
 Minimum rack travel: 7,00
 Speed rpm : 250
 Rack travel in mm : 5,50...6,80
 Rack travel in mm : 2,10

Speed rpm : 480...520

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600

Del. quantity cm³/ : 113,0...117,0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12,50

Speed rpm : 1220

STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm³/ : 19,0...24,0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1300

Del. quantity cm³/ : 29,0...34,0
1000 s: (-)

LOW IDLE

Speed rpm : 225

Del. quantity cm³/ : 11,0...13,0
1000 s: (-)

Remarks:

Start-of-delivery setting without ROBO
diaphragm.

Start-of-delivery setting with ROBO
diaphragm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA 8,0 p
Edition : 18.07.89
Replaces : -
Test oil : ISO-4113
Combination no. : 0 401 846 232
Injection pump
Pump designation : PE6P100A720RS201
Governor
Governor design. : RQ200/1200PA102R

Customer-spec. information
Customer : SCANIA

Engine : DS 8

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 40...45
Overflow valve : 1 417 413 025

Inlet press., bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6,00x1,50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY

Prestroke mm : 2,50...2,60
 : (2,45...2,65)
Rack travel in mm : 9,00...12,00
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0,50 (0,75)

NO4

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 13,50

Del. quantity cm³/ : 12,2...12,6

100 s : (-)

Spread cm³ : 0,5

100 s : (-)

2nd speed rpm : 225
Rack travel in mm : 6,00
Del. quantity cm³/ : 1,0...1,2
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1270
Rack travel in mm : 15.60...16.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1200
Del. quantity : 123,0...125,0
1000 : (-)

RATED SPEED

1st version

Setting point:
Speed rpm : 1270
Rack travel in mm : 15.8

Testing:

1st rack travel in: 12,50
Speed rpm : 1245...1260
2nd rack travel in: 3,60
Speed rpm : 1405...1435
4th rack travel in: 1500
Speed rpm : 0,00...1,00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 730
Rack travel in mm : 0.00...0.01

Testing:

Speed rpm : 180
Minimum rack travel: 7,00
Speed rpm : 250
Rack travel in mm : 5,50...6,80
Rack travel in mm : 2,1

Speed rpm : 480...520

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600

Del. quantity cm³/ : 113,0...117,0

1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12,50

Speed rpm : 1220

STARTING FUEL DELIVERY

Speed rpm : 100

Del. quantity cm³/ : 19,0...24,0

1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1300

Del. quantity cm³/ : 29,0...34,0

1000 s: (-)

LOW IDLE

Speed rpm : 225

Del. quantity cm³/ : 11,0...13,0

Remarks:

Start-of-delivery setting without ROBO diaphragm.

Start-of-delivery setting with ROBO diaphragm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : AL0 13,8 i
 Edition : 24.8.89
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 401 846 349

Injection pump
 Pump designation : PE6P120A420LS314
 EP type number : 0 411 826 088
 Governor
 Governor design. : RQV300...950PA314KR
 Governor no. : 0 421 815 105

Customer-spec. information
 Customer : ALLIS CHALMERS

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 0025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 443 022

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 060

Outside diameter
 x Wall thickness
 x Length mm : 8,00x2,00x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 10.50
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

NO6

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 12.00

Del. quantity cm³/ : 27.0...27.6

100 s : (-)

Spread cm³ : 0.8

100 s : (-)

2nd speed rpm : 300

Rack travel in mm : 2.1...2.7

Del. quantity cm³/ : (-)

100 s : 0.6

Spread cm³ : (-)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1050

Rack travel in mm : 15.00...18.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 950

Del. quantity : 210.0...212.0

1000 : (-)

Spread cm³ : 6.0

1000 : (-)

RATED SPEED

1st version

Control lever

position degrees: 57...65

Testing:

1st rack travel in: 8.60

Speed rpm : 990...1000

2nd rack travel in: 3.30

Speed rpm : 1135...1165

4th rack travel in: 1250

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 8...16

Testing:

Speed rpm : 200

Minimum rack travel: 7.40

Speed rpm : 350

Rack travel in mm : 3.00...5.20

Rack travel in mm : 3.00

Speed rpm : 390...410
Speed rpm : 510
Maximum rack trave: 1.30

START CUT-OUT

Speed 1/min : 150...250

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm³/ : 197.6...200.4
1000 s: (-)
Spread cm³ : 10.0
1000 s: (-)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 8.60
Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 130.0...170.0
1000 s: (-)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,6 a
 Edition : 15.08.89
 Replaces : 7.4.89
 Test oil : ISO-4113
 Combination no. : 0 401 846 494
 Injection pump
 Pump designation : PE6P100A72ORS473
 EP type number : 0 411 806 196
 Governor
 Governor design. : RQ300/1100PA269-1
 Governor no. : 0 421 801 237

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM 355

1st version kW : 177.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness : 6.00x1.50x600
 x Length mm

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.50...12.60

Del. quantity cm³/ : 12.0...12.2

100 s: (11.8...12.4)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 8.1...8.3

Del. quantity cm³/ : 1.7...2.3

100 s: (1.4...2.5)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 13.40...13.90

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del. quantity : 120.0...122.0

1000 : (118.0...124.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 13.6

Testing:

1st rack travel in: 11.50

Speed rpm : 1140...1150

2nd rack travel in: 4.00
Speed rpm : 1185...1215
4th rack travel in: 1350
Speed rpm : 0.00...1.50

LOW IDLE 1
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.1

Testing:
Speed rpm : 200
Minimum rack trave: 7.50
Speed rpm : 300
Rack travel in mm : 6.00...6.30
Rack travel in mm : 2.00
Speed rpm : 350...390

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 600
Del.quantity cm3/ : 110.0...114.0
1000 s: (107.5...116.5)
Spread cm3 : 5.00
1000 s: (7.00)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.50
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 150.0...170.0
1000 s: (146.0...174.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 10,0 o
 Edition : 02.05.89
 Replaces : 9.10.87
 Test oil : ISO-4113

Combination no. : 0 401 846 745

Injection pump
 Pump designation : PE6P110A32ORS3080
 EP type number : 0 411 816 722
 Governor
 Governor design. : RQV250...1100PA589
 Governor no. : 0 421 813 307

Customer-spec. information
 Customer : VOLVO

Engine : TD 100 G

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...174

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X-600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60
 : (3.45...3.65)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.30...12.40

Del. quantity cm³/ : 16.7...16.9

100 s: (16.4...17.2)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 3.9...4.1

Del. quantity cm³/ : 1.5...1.9

100 s: (1.2...2.1)

Spread cm³ : 0.3

100 s: (0.6)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
 travel mm : 1.20...1.30

2nd speed rpm : 370
 travel mm : 2.60...3.00

3rd speed rpm : 430
 travel mm : 3.50...3.90

4th speed rpm : 1160
 travel mm : 8.10...8.30

5th speed rpm : 1210
 travel mm : 9.40...9.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1180

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

Del. quantity : 167.0...169.0

1000 : (164.0...172.0)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 59...67

Testing:
1st rack travel in: 11.30
Speed rpm : 1160...1170
2nd rack travel in: 4.00
Speed rpm : 1220...1250
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 4...12

Testing:
Speed rpm : 100
Minimum rack travel: 5.30
Speed rpm : 250
Rack travel in mm : 3.90...4.10

CONSTANT REGULATION
Speed rpm : 270...380

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.30...12.40

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.80...10.00
2nd pressure hPa : 610
Rack travel in m: 12.10...12.20
3rd pressure hPa : 280
Rack travel in m: 10.10...10.30

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 700
Del. quantity cm³/ : 121.0...124.0
1000 s: (118.0...127.0)

BREAKAWAY

1st version

N11

1mm rack travel less than
full load rack tr: 11.30
Speed rpm : 1160...1170

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 160.0...190.0
1000 s: (156.0...196.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 3.90...4.10
Del. quantity cm³/ : 15.0...19.0
1000 s: (12.5...21.5)
Spread cm³ : 3.00
1000 s: (6.00)

Remarks:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA 9,0 j
Edition : 07.02.89
Replaces : 12.1.89
Test oil : IS0-4113
Combination no. : 0 401 846 849
Injection pump
Pump designation : PE6P120A32ORS3196
EP type number : 0 411 826 763
Governor
Governor design. : RQV200...1100PA729-1
Governor no. : 0 421 813 470

Customer-spec. information
Customer : SAAB-SCANIA

Engine : DS9 06

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : 1 417 413 025
Inlet press., bar : 1.50
Test nozzle holder
assembly : 1 688 901 019
Opening
pressure, bar : 207...210
Orifice plate
diameter mm : 0,8
Test lines : 1 680 750 015
Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600
(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
Prestroke mm : 5.00...5.10
 : (4.95...5.15)
Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 10.40...10.50

Del. quantity cm³/ : 13.3...13.5

100 s: (13.0...13.8)

Spread cm³ : 0.5

100 s: (0.8)

2nd speed rpm : 225.0
Rack travel in mm : 4.7...5.3
Del. quantity cm³/ : 2.2...2.6
100 s: (-)
Spread cm³ : 0.3
100 s: (0.6)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 225
travel mm : 0.50...0.90
2nd speed rpm : 350
travel mm : 2.00...2.60
3rd speed rpm : 650
travel mm : 4.90...5.50
4th speed rpm : 1145
travel mm : 8.30...8.50
5th speed rpm : 1250
travel mm : 9.20...9.60

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1120
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 700
Del. quantity : 133.0...135.0
1000 : (130.0...138.0)
Spread cm³ : 5.00
1000 : (8.00)

RATED SPEED

1st version
Control lever
position degrees: 56...64

Testing:

1st rack travel in: 9.40
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1235...1265
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 27...35

Testing:

Speed rpm : 100
Minimum rack travel: 6.20
Speed rpm : 225
Rack travel in mm : 4.60...4.80
Rack travel in mm : 2.00
Speed rpm : 300...360

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1100
Del. quantity cm³/ : 145.0...153.0
1000 s: (143.0...155.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.40
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 330.0...380.0
1000 s: (-)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 225
Rack travel in mm : 4.60...4.80

Remarks:

:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

ADDITIONAL INFORMATION

Start-of-delivery setting with ROBO
diaphragm.

For comb. with letter index see
VDT-I-400/116.

For sealing see VDT-I-400/117.

Test specifications approved by Scania
on 1988-09-12

Start of delivery - engine: 13° before
TDC

Firing sequence of engine:
1-5-3-6-2-4.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 18,3 c
 Edition : 20.6.88
 Replaces : 10.85
 Test oil : ISO-4113
 Combination no. : 0 401 849 705
 Injection pump
 Pump designation : PE10P110A320LS3818
 Governor
 Governor design. : RQ300/1150PA437-2

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM 423

1st version kW : 261.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 3.10...3.20
 : (3.05...3.25)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 8- 7- 6- 3- 5-
 : 2- 10- 9- 4

Phasing : 0-27-72-99-144-171-2
 : 16-243-288-315
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 10

BASIC SETTING

1st speed rpm : 1150

 Rack travel in mm : 11.20...11.30

 Del. quantity cm³/ : 12.6...12.8

 100 s : (12.3...13.0)

 Spread cm³ : 0.4

 100 s : (0.8)

2nd speed rpm : 300
 Rack travel in mm : 7.9...8.1
 Del. quantity cm³/ : 1.2...2.0
 100 s : (0.9...2.3)
 Spread cm³ : 0.4
 100 s : (0.7)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 600
 Rack travel in mm : 13.00...14.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1150
 Del. quantity : 126.0...128.0
 1000 : (123.5...130.5)
 Spread cm³ : 4.00
 1000 : (8.00)

RATED SPEED

1st version
 Setting point:
 Speed rpm : 600
 Rack travel in mm : 13.5

Testing:
 1st rack travel in: 10.20
 Speed rpm : 1190...12.05
 2nd rack travel in: 4.00
 Speed rpm : 1225...1255
 4th rack travel in: 1350
 Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 8.0

Testing:

Speed rpm : 100

Minimum rack trave: 9.50

Speed rpm : 300

Rack travel in mm : 7.90...8.10

Rack travel in mm : 2.00

Speed rpm : 430...470

TORQUE CONTROL

Dimension a mm : 0.20

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 11.20...11.30

2nd speed rpm : 600

Rack travel in m: 11.70...11.90

3rd speed rpm : 900

Rack travel in m: 11.60...11.80

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600

Del.quantity cm3/ : 109.0...113.0

1000 s: (106.0...116.0)

Speed rpm : 900

Del.quantity cm3/ : 118.0...123.0

1000 s: (115.0...126.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.20

Speed rpm : 1190...1205

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 140.0...160.0

1000 s: (136.0...164.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : PEN 7.0 b 2
Edition : 28.06.88
Replaces : 05.84
Test oil : ISO-4113

Combination no. : 0 401 876 272

Injection pump
Pump designation : PE6P110A32ORS260W
EP type number : 0 411 816 154
Governor
Governor design. : RSV250...1250P0/374-2R
Governor no. : 0 421 833 068

Customer-spec. information
Customer : VOLVO-PENTA

Engine : TAM70E

1st version kW : 228.0
Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values -----

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)

Rack travel in mm : 9.00...12.00
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 12.10...12.20

Del. quantity cm³/ : 14.1...14.3

100 s: (13.8...14.6)

Spread cm³ : 0.40

100 s: (0.75)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 2.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 900

Del. quantity : 141.0...143.0

1000 : (138.0...146.0)

Spread cm³ : 4.0

1000 : (7.5)

RATED SPEED

1st version

Control lever

position degrees: 50...58

Testing:

1st rack travel in: 11.10

Speed rpm : 1290...1300

2nd rack travel in: 4.00

Speed rpm : 1390...1420

4th rack travel in: 1510

Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever

position degrees: 22...30

Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.70
Speed rpm : 250
Rack travel in mm : 6.10...6.30
Rack travel in mm : 2.00
Speed rpm : 480...540

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.10...12.20

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.00...9.40
2nd pressure hPa : 590
Rack travel in m: 11.30...11.40
3rd pressure hPa : 300
Rack travel in m: 9.70...9.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 700
Del. quantity cm³/ : 85.0...88.0
1000 s: (82.0...91.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 11.10
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 170.0...210.0
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 6.10...6.30
Del. quantity cm³/ : 11.0...15.0
Spread cm³ : 3.0
1000 s: (6.0)

Remarks:

APPLICATION

Navy

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : PEN 7.1 b
Edition : 27.06.88
Replaces : 10.85
Test oil : ISO-4113
Combination no. : 0 401 876 315
Injection pump
Pump designation : PE6P110A32ORS492
EP type number : 0 411 816 161
Governor
Governor design. : RSV650...750P4/421
Governor no. : 0 421 833 120

Customer-spec. information
Customer : VOLVO-PENTA

Engine : TJD71G

1st version kW : 127.0
Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
: (2.95...3.15)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.60...12.70

Del. quantity cm³/ : 13.4...13.6

100 s : 13.1...13.9

Spread cm³ : 0.40

100 s : (0.75)

2nd speed rpm : 650

Rack travel in mm : 4.40...4.60

Del. quantity cm³/ : 1.6...2.0

100 s : (1.3...2.2)

Spread cm³ : 0.30

100 s : (0.60)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 2.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del. quantity : 134.0...136.0

1000 : (131.0...139.0)

Spread cm³ : 4.0

1000 : (7.5)

RATED SPEED

1st version

Control lever

position degrees: 35...43

Testing:

1st rack travel in: 11.6

Speed rpm : 750...755

2nd rack travel in: 4.0

Speed rpm : 775...785

4th rack travel in: 930

Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever

position degrees: 29...37

Setting point w/out bumper spring

Speed rpm : 650

Rack travel in mm : 6.10

Speed rpm : 650

Rack travel in mm : 6.00...6.20

Rack travel in mm : 2.00

Speed rpm : 660...700

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.60

Speed rpm : 750...755

LOW IDLE

Speed rpm : 650

Rack travel in mm : 6.00...6.20

Remarks:

Delivery-valve spring pre-tension =

2.40...2.60 mm.

Permissible alteration from 2.20...2.90

mm

APPLICATION

Generator set

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ALO 12,0 a
Edition : 23.08.89
Replaces : -
Test oil : ISO-4113
Combination no. : 0 402 046 169
Injection pump
Pump designation : PES6P120A32ORS358
Governor
Governor design. : RQV375...1250PA385KR

Customer-spec. information
Customer : ALLIS-CHALMERS

Engine : 12 LITRE

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : 1 417 413 025

Inlet press., bar : 1.5

Test nozzle holder
assembly : 0 681 443 022

Opening
pressure, bar : 172...175

Test lines : 1 680 750 060

Outside diameter
x Wall thickness
x Length mm : 8,00x2,00x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Prestroke mm : 2,80...2,90
 : (2,75...2,95)
Rack travel in mm : 9,00...12,00
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0,50 (0,75)

N20

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250
Rack travel in mm : 9,80
Del. quantity cm³/ : 20,3...20,5
100 s : (20,1...20,7)
Spread cm³ : 0,5
100 s : (-)

2nd speed rpm : 375
Rack travel in mm : 4,90
Del. quantity cm³/ : 2,2...2,8
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1320
Rack travel in mm : 15,00...17,60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1250
Del. quantity : 203,0...205,0
1000 : (201,0...207,0)
Spread cm³ : 5,0
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 59...67

Setting point:
Speed rpm : 1320
Rack travel in mm : 16,3

Testing:
1st rack travel in: 8,80
Speed rpm : 1290...1300
2nd rack travel in: 3,50
Speed rpm : 1525...1555
4th rack travel in: 1620
Speed rpm : 0,00...1,00

LOW IDLE 1

Control lever
position degrees: 9...17
Setting point w/out bumper spring
Speed rpm : 300

Rack travel in mm : 8,55

Testing:

Speed rpm : 375
Minimum rack trave: 4,70
Speed rpm : 400
Rack travel in mm : 3,50...5,70
Rack travel in mm : 1,10
Speed rpm : 590...610
Speed rpm : 620
Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1250
Rack travel in m: 9,80
2nd speed rpm : 1000
Rack travel in m: 9,75
3rd speed rpm : 800
Rack travel in m: 9,70

START CUT-OUT

Speed 1/min : 220...280

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800
Del.quantity cm3/ : 183,0...187,0
1000 s: (181,0...189,0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,80
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 115,0...155,0
1000 s: (-)

LOW IDLE

Speed rpm : 375
Del.quantity cm3/ : 22,0...28,0
1000 s: (-)

Remarks:

APPLICATION

Tractor (tractor engines)

N21

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 14,9 f
Edition : 09.03.87
Replaces : 25.9.86
Test oil : ISO-4113

Combination no. : 0 402 048 044

Injection pump
Pump designation : PES8P120A32ORS507
EP type number : 0 412 028 023
Governor
Governor design. : RQV275...1050PA665-1
Governor no. : 0 421 813 468

Customer-spec. information
Customer : RVI

Engine : MIVR083530C

1st version kW : 280.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar : 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 9.00...12.00
Firing order : 1- 8- 4- 2- 7- 3-
6- 5

Phasing : 0-45-90-135-180-225-
270-315
Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.00...11.10

Del. quantity cm³/ : 18.2...18.4

100 s : (17.9...18.7)

Spread cm³ : 0.5

100 s : (0.9)

2nd speed rpm : 275.0

Rack travel in mm : 6.2...6.4

Del. quantity cm³/ : 1.7...2.3

100 s : (1.4...2.6)

Spread cm³ : 0.8

100 s : (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 275
travel mm : 1.40...1.60

2nd speed rpm : 450
travel mm : 3.40...3.80

3rd speed rpm : 800
travel mm : 5.80...6.00

4th speed rpm : 1050
travel mm : 7.60...7.80

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1

Speed rpm : 1140

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1050
Aneroid pressure h: 700

Del. quantity : 182.0...184.0

1000 : (179.0...187.0)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 61...69

Testing:

1st rack travel in: 10.00
Speed rpm : 1105...1115
2nd rack travel in: 4.00
Speed rpm : 1195...1225
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 7...15

Testing:

Speed rpm : 200
Minimum rack travel: 6.40
Speed rpm : 275
Rack travel in mm : 4.60...4.80

CONSTANT REGULATION

Speed rpm : 280...405

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 11.00...11.10

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.40...9.50
2nd pressure hPa : 150
Rack travel in m: 10.60...10.80
3rd pressure hPa : 110
Rack travel in m: 9.60...9.90

START CUT-OUT

Speed 1/min : 195 (215)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 650

Del. quantity cm³/ : 165.0...171.0
1000 s: (162.0...174.0)

Aneroid pressure h: -

Speed rpm : 500

Del. quantity cm³/ : 116.0...118.0
1000 s: (113.0...121.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.00
Speed rpm : 1105...1115

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 140.0...160.0
1000 s: (136.0...164.0)

LOW IDLE

Speed rpm : 275
Rack travel in mm : 4.60...4.80

Remarks:

:
Start-of-delivery mark 13° cam angle
after start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 14,9 f2
 Edition : 27.03.87
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 048 045

Injection pump
 Pump designation : PES8P120A320RS507
 EP type number : 0 412 028 023
 Governor
 Governor design. : RQV275...1050PA665
 Governor no. : 0 421 813 370

Customer-spec. information
 Customer : RVI

Engine : MIVS083530

1st version kW : 268.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 8- 4- 2- 7- 3-
 : 6- 5

Phasing : 0-45-90-135-180-225-
 : 270-315

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.2...11.3

Del. quantity cm³/ : 18.7...18.9

100 s: (18.4...19.2)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 275.0

Rack travel in mm : 6.4...6.6

Del. quantity cm³/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 275
 travel mm : 1.30...1.70

2nd speed rpm : 400
 travel mm : 3.00...3.50

3rd speed rpm : 525
 travel mm : 4.00...4.40

4th speed rpm : 650
 travel mm : 4.90...5.30

5th speed rpm : 1050
 travel mm : 7.60...7.80

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1140

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 700

Del. quantity : 187.0...189.0
1000 : (184.0...192.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 61...69

Testing:

1st rack travel in: 10.20
Speed rpm : 1105...1115
2nd rack travel in: 4.00
Speed rpm : 1195...1225
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 7...15

Testing:

Speed rpm : 100
Minimum rack travel: 6.40
Speed rpm : 275
Rack travel in mm : 4.60...4.80

CONSTANT REGULATION

Speed rpm : 290...405

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 11.20...11.30

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.30...9.40
2nd pressure hPa : 280
Rack travel in m: 10.80...10.90
3rd pressure hPa : 220
Rack travel in m: 9.50...9.70

START CUT-OUT

Speed 1/min : 195 (215)

FUEL DELIVERY CHARACTERISTICS

1st version

N25

Aneroid pressure h: 700
Speed rpm : 650
Del. quantity cm³/ : 170.0...176.0
1000 s: (167.0...179.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 114.0...116.0
1000 s: (111.0...119.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.20
Speed rpm : 1105...1115

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 140.0...160.0
1000 s: (136.0...164.0)

LOW IDLE

Speed rpm : 275
Rack travel in mm : 4.60...4.80
Del. quantity cm³/ : 14.0...20.0
1000 s: (11.0...23.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:
Start-of-delivery mark 13° cam angle
after start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 14,9 e
 Edition : 13.05.87
 Replaces : 5.85
 Test oil : ISO-4113

Combination no. : 0 402 048 701

Injection pump
 Pump designation : PES8P120A32ORS3124
 EP type number : 0 412 028 701
 Governor
 Governor design. : RQ750PA596
 Governor no. : 0 421 801 149

Customer-spec. information
 Customer : RVI

Engine : MIVS (R)083530

1st version kW : 320.0
 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 8- 4- 2- 7- 3-
 6- 5

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 11.40...11.50

Del. quantity cm³/ : 26.7...26.9

100 s: (26.4...27.2)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 4.2...4.4

Del. quantity cm³/ : 1.5...2.1

100 s: (1.2...2.4)

Spread cm³ : 0.8

100 s: (1.2)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del. quantity : 267.0...269.0

1000 : (264.0...272.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Testing:

1st rack travel in: 10.40

Speed rpm : 750...755

2nd rack travel in: 4.00

Speed rpm : 775...785

4th rack travel in: 900

Speed rpm : 0.00...1.00

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.40
Speed rpm : 750...755

Remarks:

:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.